GoldStar

Service Manual

CS-3020

COMPONENT SYSTEM

CS-3020

Printed in Korea

Nov. 1984
SV2-089B

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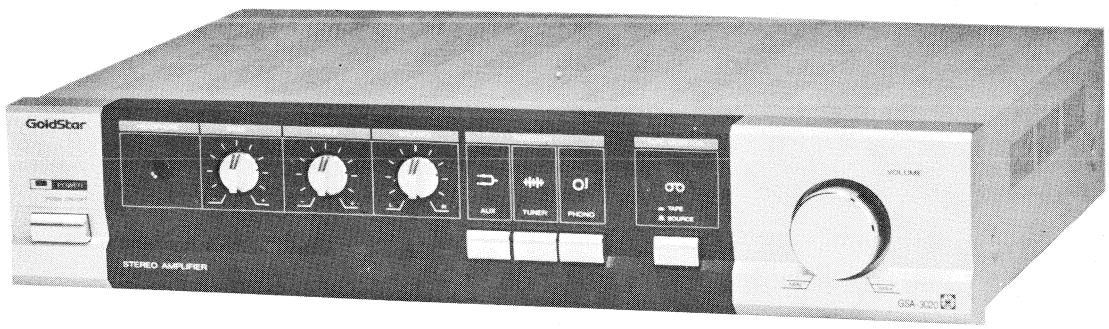
PRODUCTS SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by then can not necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements, electrical components having such features are identified by a ⚠ in the schematic diagram and the parts list.
Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list many create shock, fire, or other hazards.

STEREO AMP.

GSA-3020



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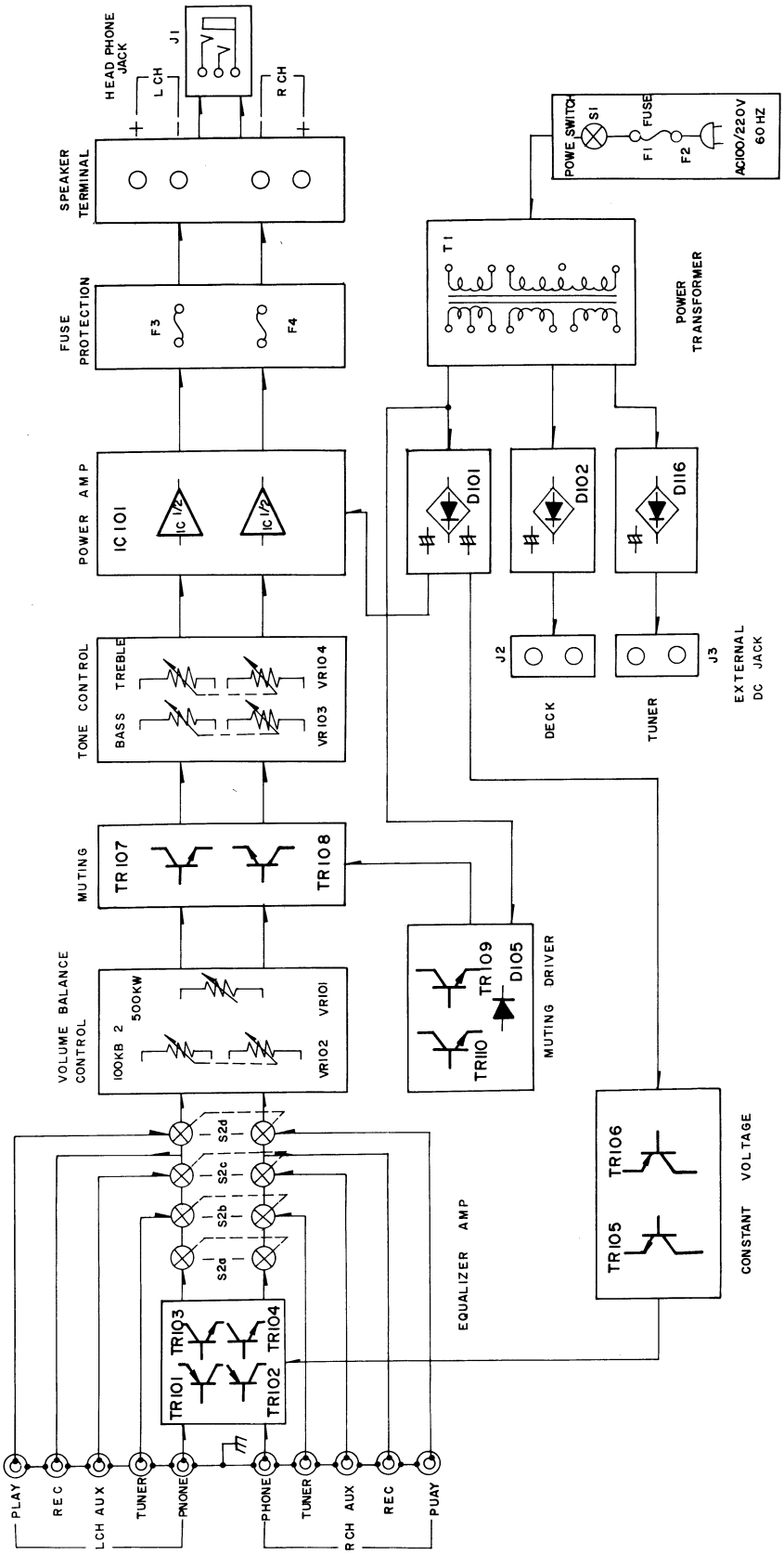
SPECIFICATIONS

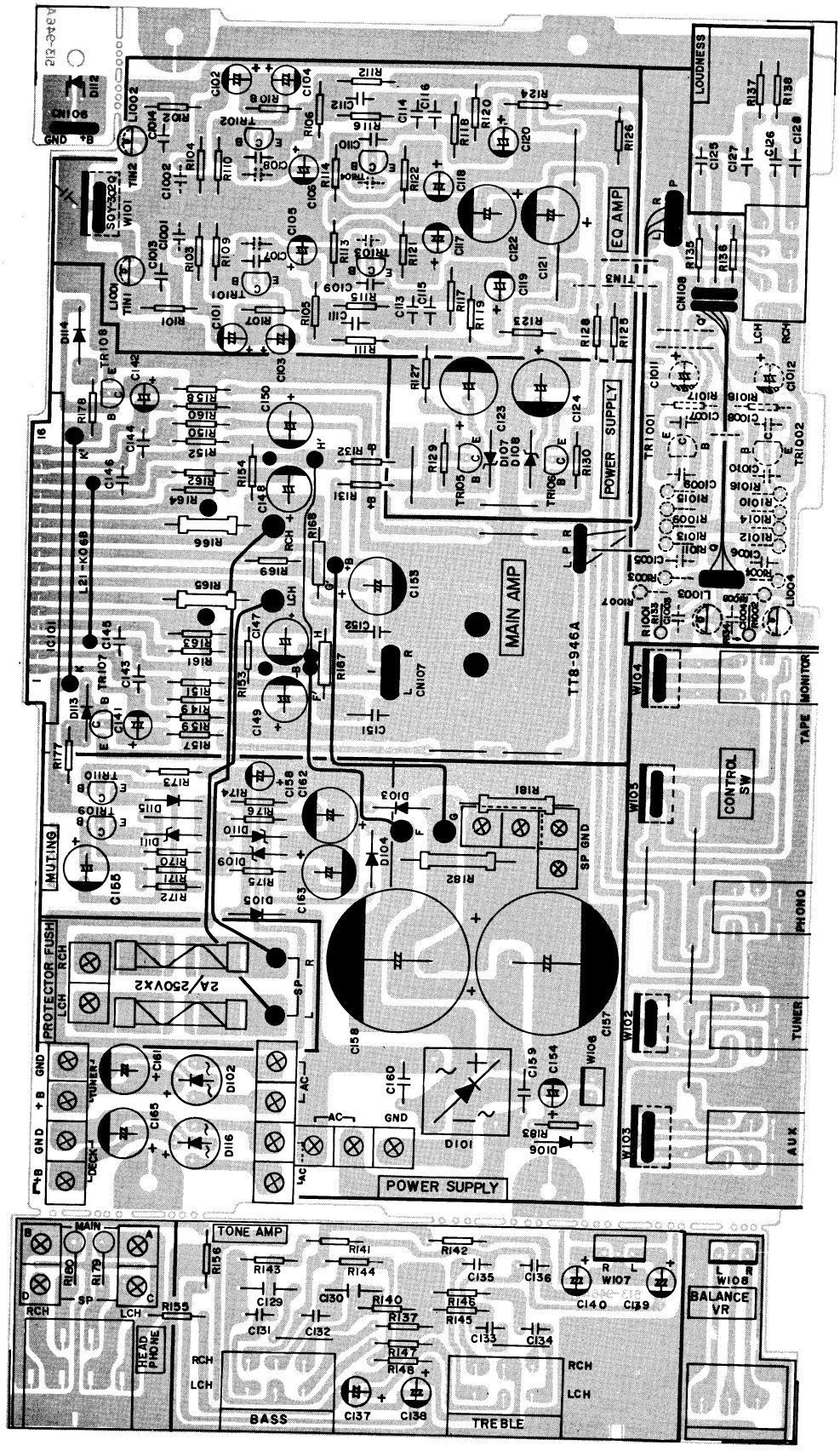
1. Out put (1kHz, 8 Ω, THD 0.2%) ..... 25W+25W
2. THD ..... Less than 0.2%
3. Frequency Response ..... Aux, Tuner, Tape : More than 90dB
   Phono : More than 65dB
4. Cross Talk ..... More than 50dB
5. Base Control ..... +8.5dB
6. Treble Control ..... +8.5dB
7. Input Sensitivity ..... Phono : 2.5mV, Tape : 150mV, Aux : 150mV
8. Input Inpedance ..... Phono : 50kΩ, Tape : 50kΩ, Aux : 50kΩ
9. Hum & Distortion (VR Min) 0.6mV

Note : This specifications may be changed for improvement of performance without notice.

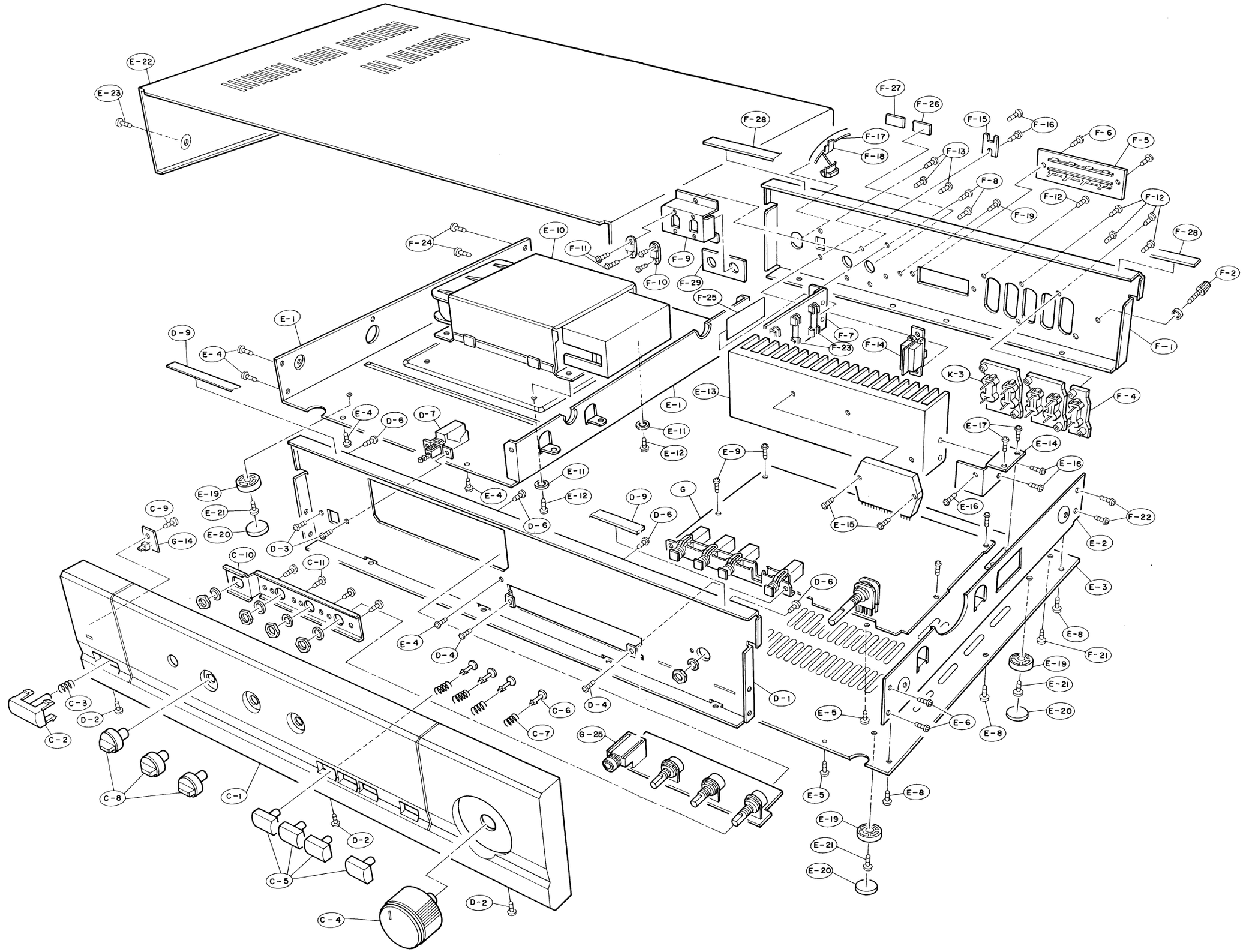
BLOCK DIAGRAM



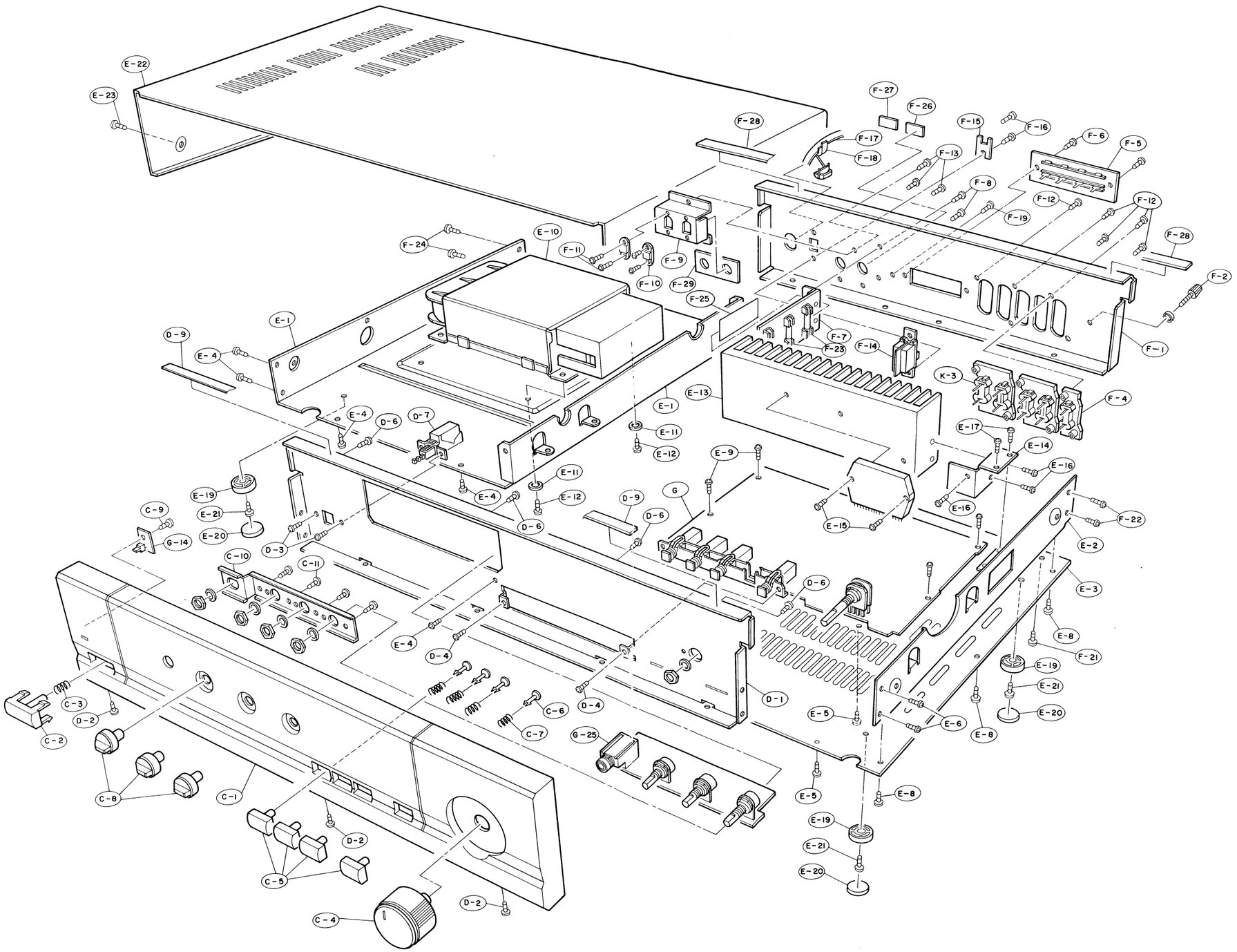
P. C. BOARD (TOP VIEW)



EXPLODED VIEW (CABINET)



EXPLODED VIEW (CABINET)



ELECTRICAL PARTS LIST

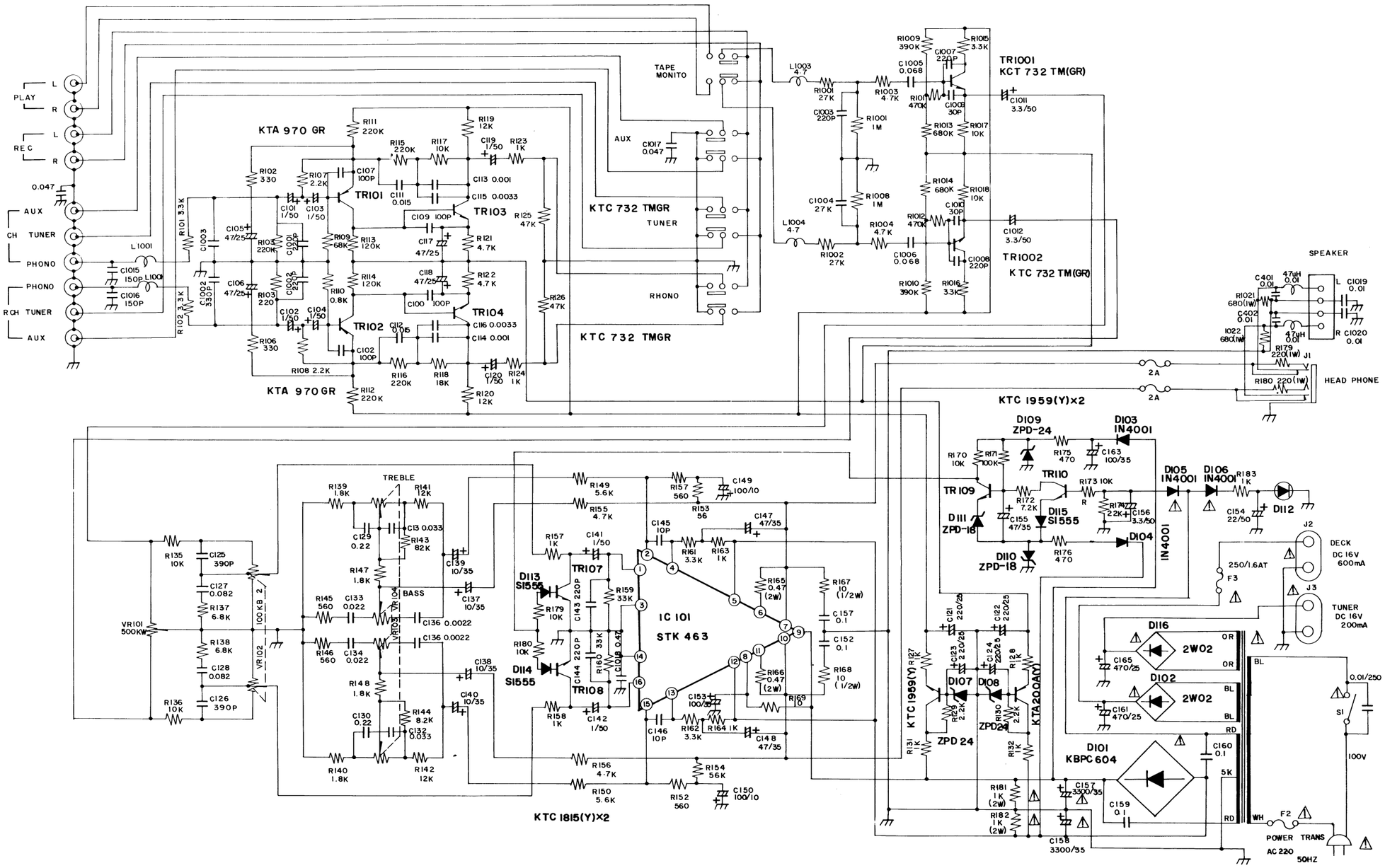
PRODUCT SAFETY NOTE : Products marked with a ⚠ have special characteristics important to safety, before replacing any of these components, read carefully the product safety notice of this service manual, don't degrade the safety of the product through improper servicing.

REF. NO.	DESCRIPTION	MFR'S PART NO.
	IC/TRANSISTOR	
IC101	IC, STK-463	668-134A
TR101	TR, KTA970-GR	665-818A
TR102	TR, KTA970-GR	665-818A
TR103	TR, KTC732TM-GR	665-816A
TR104	TR, KTC732TM-GR	665-816A
TR105	TR, KTC1959-Y	665-814B
TR106	TR, KTC200-Y	665-842A
TR107	TR, KTC1959-Y	665-814B
TR108	TR, KTC1959-Y	665-814B
TR109	TR, KTC1815-Y	665-812B
TR110	TR, KTC1815-Y	665-812B
	DIODE	
⚠D101	KBPC604	652-611A
⚠D102	2W02	652-612A
D103	1N4001	652-005A
D104	1N4001	652-005A
⚠D105	1N4001	652-005A
⚠D106	1N4001	652-005A
D107	ZPD-24	654-607E
D108	ZPD-24	654-607E
D109	ZPD-24	654-607E
D110	ZPD-18	654-607D
D111	ZPD-18	654-607D
D112	KLR208E	653-625A
D113	KDS1555	652-015B
D114	KDS1555	652-015B
D115	KDS1555	652-015B
⚠D116	2W02	652-611A
	OTHERS	
VR101	VR, 100KB	611-636D
VR102	VR, 500KW	611-632H
VR103	VR, 100KC	611-631E
VR104	VR, 100KC	611-631E
	Switch-Function	554-631B
	Jack-Headphone	572-034D
⚠F1	Fuse, 250V 2A	585-113B
⚠F2	Fuse, 250V 2A	585-113B
R165	R, Metal Oxide 0.47 2W	RSR47J07
R166	R, Metal Oxide 0.47 2W	RSR47J07
R167	R, Carbon Film 10 1/2W	RD100J03
R168	R, Carbon Film 10 1/2W	RD100J03
⚠R181	R, METAL OXIDE 1K 2W	RS102K07
⚠R182	R, METAL OXIDE 1K 2W	RS102K07
⚠C157	C, ELECTROLYTIC 3300μF 50V	CE338F01
⚠C158	C, ELECTROLYTIC 3300μF 50V	CE338F01

MECHANICAL PARTS LIST

REF. NO.	DESCRIPTION	MFR'S PART NO.
C-1	PANEL, FRONT	258-951B
C-2	KNOB, POWER	273-753A
C-3	SPRING, KNOB	442-634T
C-4	KNOB, VOLUME	272-251A
C-5	KNOB, PUSH	273-750A
C-6	HOLDER, PUSH KNOB	324-426A
C-7	SPRING, KNOB	442-634G
C-8	KNOB, FUNCTION	273-754A
C-9	SCREW, SPECIAL	353-025G
C-10	BRACKET, CONTROL	321-975A
C-11	SCREW, SPECIAL	353-025G
D-1	CHASSIS, FRONT	313-928A
D-2	SCREW, TRQ2+3×8A	TRQ18361
D-3	SCREW	MRC1830J
D-4	SCREW	MRC1830J
D-6	SCREW, SPECIAL	353-025G
⚠D-7	SWITCH, POWER	554-022B
D-9	CUSHION	447-606R
E-1	CHASSIS, BOTTOM	313-932A
E-2	FRAME, SLIDE	315-904A
E-3	PLATE, BOTTOM	256-872A
E-4	SCREW	TRQ1830J
E-5	SCREW	TRQ1830J
E-6	SCREW	TRQ1830J
E-7	SCREW	TRQ1830J
E-8	SCREW	TRQ1830J
E-9	SCREW	TRQ1830J
⚠E-10	TRANS, POWER	641-700C
E-11	WASHER, SPRING	WSB22000
E-12	SCREW	TRQ2241K
E-13	PLATE, HEATSINK	255-912A
E-14	BRACKET, HEATSINK	321-034A
E-15	SCREW	TRQ1833J
E-16	SCREW	TRQ1830J
E-17	SCREW	TRQ1830J
E-18	SCREW	TRQ1836J
E-19	FOOT	265-024A
E-20	FELT	472-610B
E-21	SCREW	TRQ1836J
E-22	CABINET	213-705A
E-23	SCREW, SPECIAL	353-072E
F-1	PANEL, BACK	258-953C
F-2	SCREW, SPECIAL	353-055A
F-3	SOCKET ASSY. RCA	573-039A
F-4	SCREW	MRC1530I
F-5	TERMINAL, SP	561-013A
F-6	SCREW	TRQ1836I
F-7	HOLDER ASSY, FUSE	586-023A
F-8	SCREW	TRQ1836I
F-9	BRACKET, HOLDER DC JACK	321-035A
⚠F-10	JACK, DC	577-101A
F-11	SCREW	TRQ1536J
F-13	SCREW	TRQ1830I
F-17	CORD, POWER	681-036E
F-18	HOLDER, CORD	324-620A
F-19	SCREW	TRQ1836I
F-20	SCREW	TRQ1830J
F-21	SCREW	TRQ1830J
F-22	SCREW	TBQ1836J
⚠F-23	FUSE, 250V 1.6A	585-112B
F-24	SCREW	TBQ1836J
F-28	CUSHION	447-606R

SCHEMATIC DIAGRAM



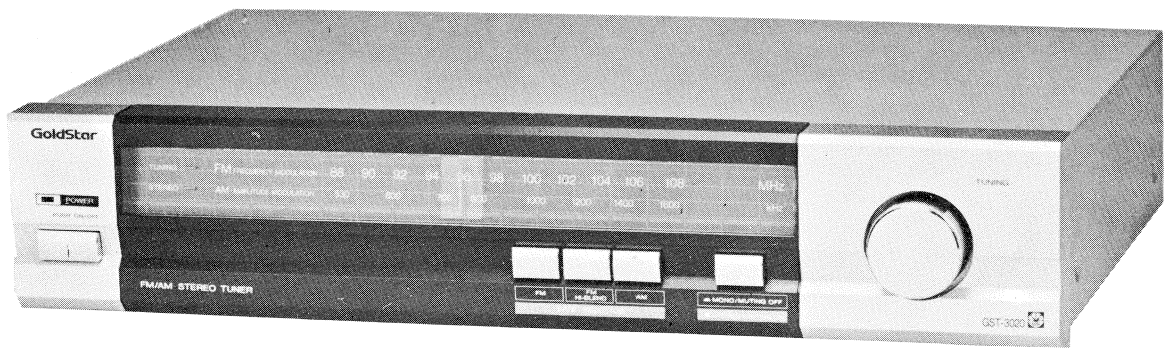
NOTE

1. ALL RESISTANCE VALVES ARE INDICATED IN "OHM" ($K=10^3$ OHM)
2. ALL CAPACITANCE VALUES ARE INDICATED IN "UF" ($P=10^{-6}$ UF)

CAUTION : SINE THE COMPONENTS MARKED BY ⚠ ARE CEITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

STEREO TUNER

GST-3020



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SPECIFICATIONS

AM SECTION

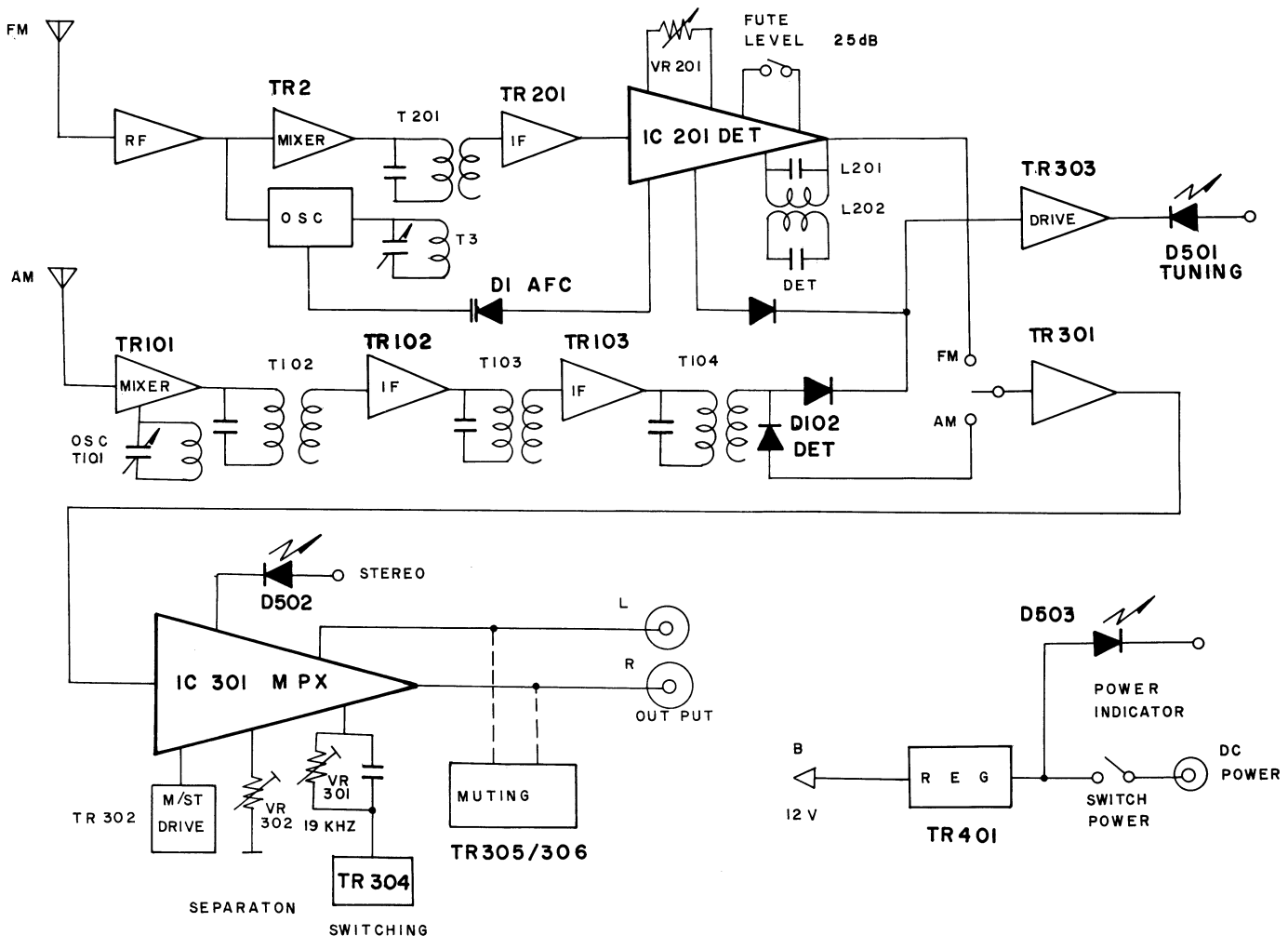
1. Frequency coverage ····· 515~1650kHz
2. Intermediate frequency ····· 455kHz
3. Sensitivity (S/N 20dB) ····· 250μV
4. Image rejection ratio ····· More than 30dB
5. IF rejection ratio ····· More than 30dB
6. Selectivity ····· More than 20dB
7. S/N ratio ····· More than 40dB
8. THD ····· Less than 3%
9. Frequency response (− 6 dB) ·· 100~25, 000Hz

FM SECTION

1. Frequency coverage ····· 87.5~108.5MHz
2. Sensitivity ····· Less than 5 V
3. S/N ratio ····· More than 54dB (Mono)
   More than 40dB (Stero)
4. Image rejection ratio ····· More than 35dB
5. IF rejection ratio ····· More than 70dB
6. THD ····· Less than 1% (Mono)
   Less than 1.5% (Stereo)
7. Frequency response (− 3 dB) ·· 30~1400Mz
8. Stereo seperation ····· More than 25dB

Note : This specifications may be changed for improvement of performance without notice.

BLOCK DIAGRAM



DIAL CORD STRINGING

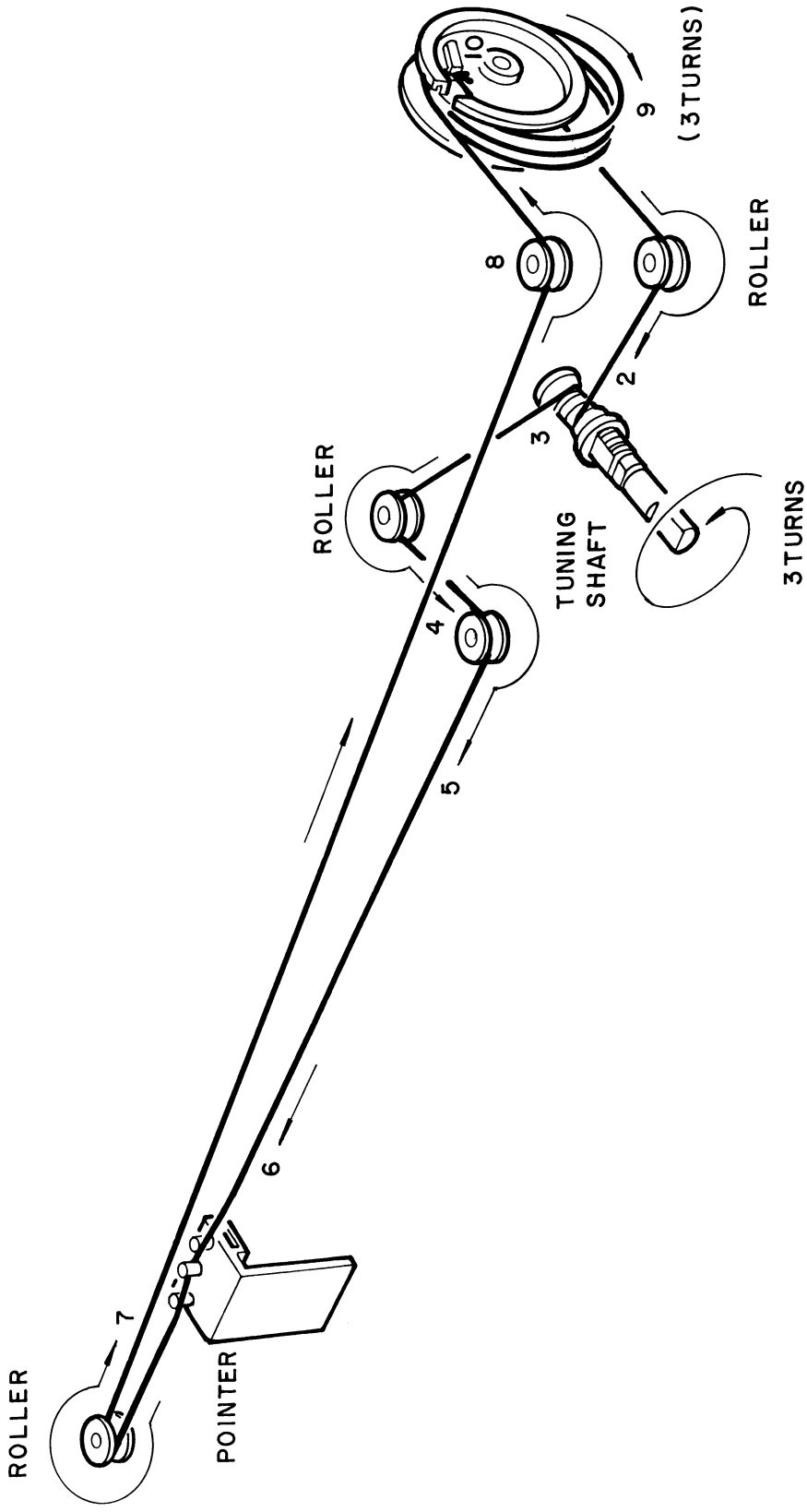


Figure 1.

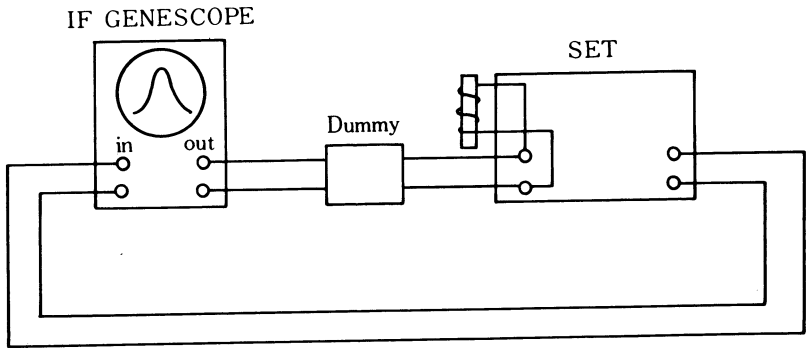
Set the tuning capacitor to minimum frequency and string the cord following the number in figure 1.

AM IF Adjustment

IF Genescope ·····The input connects to the TP3(D102) and the Output connects to the AM. Ant. Coil (L101) through the dummy.

Adjust for the IF wave form of Genescope to be maximum.

Step	Dial Pointer Posion	Genescope output(kHz)	Adjustment Point
1	Highest Freq.	455	T102, 103, 104
2	Repeat the above step 1 for minimum change.		

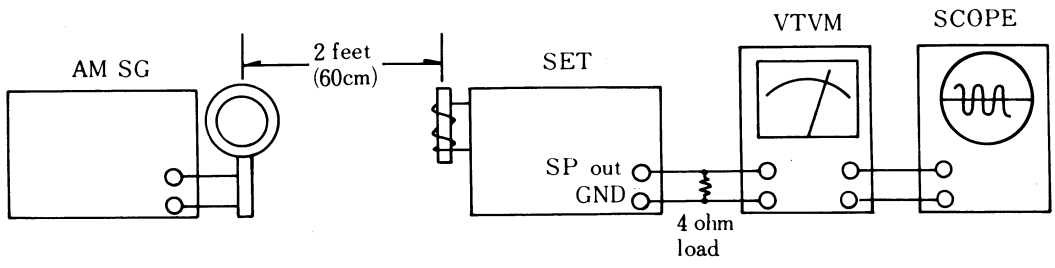


AM RF Adjustment

Signal Generator·····Connects to the AM Ant. Coil(L101) through the dummy.

Adjust for the indication of VTVM or the wave form of scope to be maximum.

Step	Dial Pointer Position	SG Output(kHz)	Adjustment Point
1	Lowest Freq.	515	T 101
2	Highest Freq.	1650	TC5
3	Repeat the above step 1, 2 for minimum change.		
4	600kHz	600	L101
5	1400kHz	1400	TC4
6	Repeat the above step 4, 5 for minimum change.		

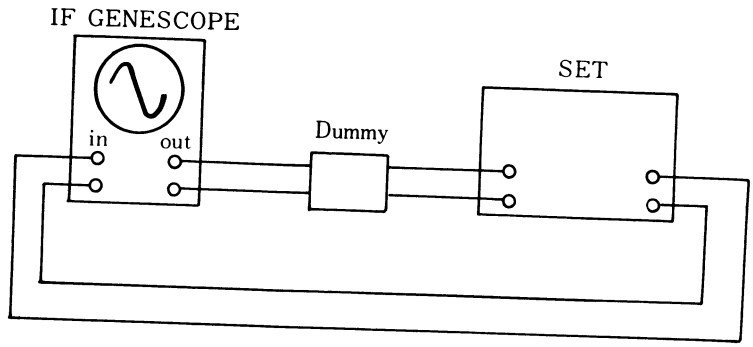


FM IF Adjustment

IF Genescope·····The input connects to the TP1 (C129) and the output connects to the L3 through the dummy. Adjust so that the wave form appeared on Genescope may be the best linear S-curve.

Step	Dial Pointer Position	Genescope Output (MHz)	Adjustment Point	Remark
1	Highest Freq.	10.7	T201	
2	Lowest Freq.	10.7	T202, T203	* 1
3	Repeat the above step 1, 2 for minimum change.			

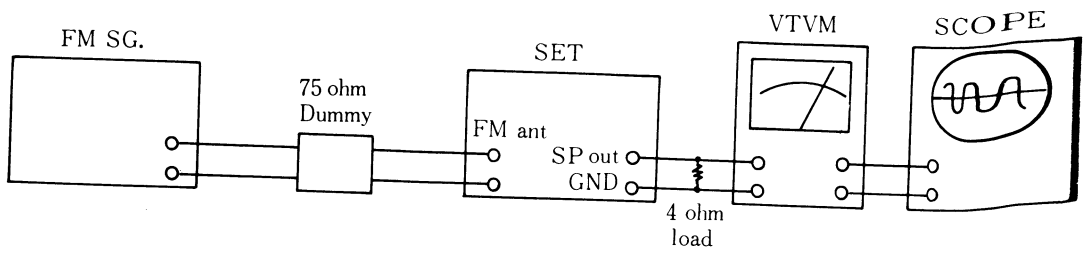
*1. Repeat untill the S-curve become the best.



FM RF Adjustment

Signal Generator·····Connect to the FM ant through the dummy.
Adjust for indication of VTVM or wave form of scope to be maximum.

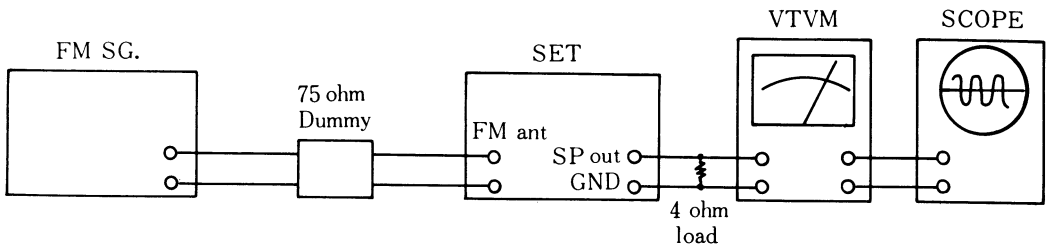
Step	Dial Pointer Position	SG Output (MHz)	Adjustment Point
1	Lowest Freq.	87	T3
2	Highest Freq.	109	TC1
3	Repeat the above step 1, 2 for minimum change.		
4	90 MHz	90	T1, T2
5	106 MHz	106	TC2, TC3
6	Repeat the above 3, 4 for minimum change.		



Mutting Sensitivity Adjustment

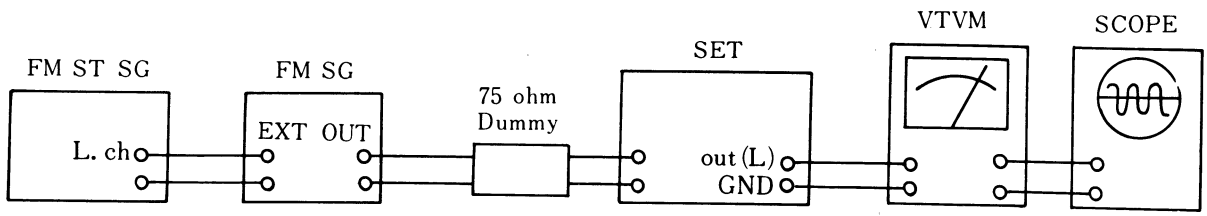
When the mutting switch changes ON from OFF, adjust VR201 for the output not to be appeared on VTVM or scope.

SSG Output	Mutting Switch	Output	Adjustment Point
25dB	OV	Disappear	VR 201
	OFF	Appear	VR 201



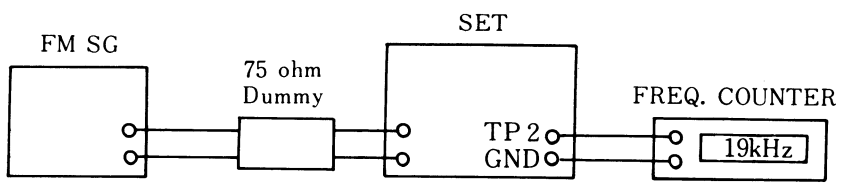
Stereo Seperation Adjustment

Add the left (or Right) Signal,
adjust VR302 so that the difference of R and L may be maximum.

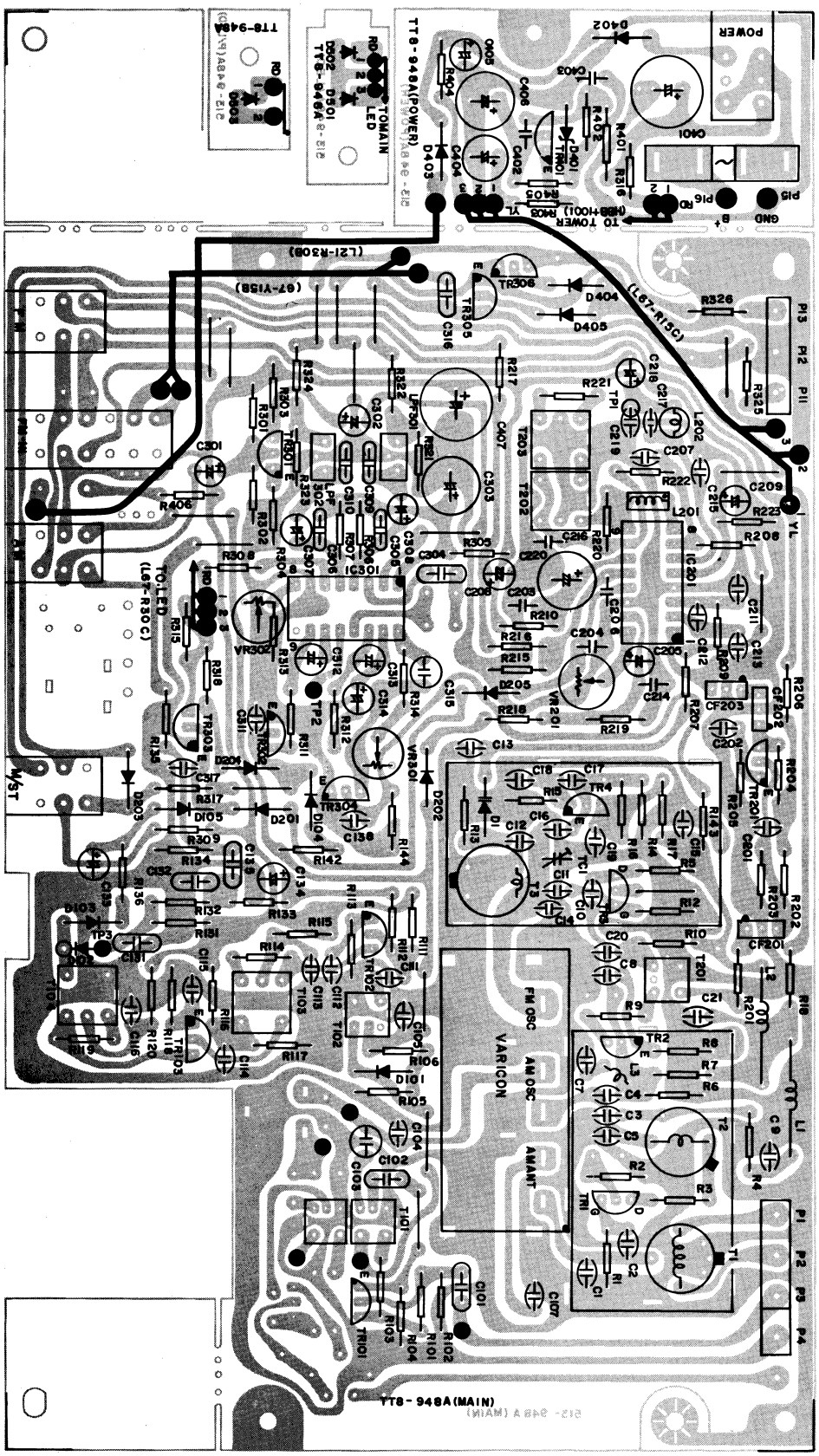


FM MPX Adjustment

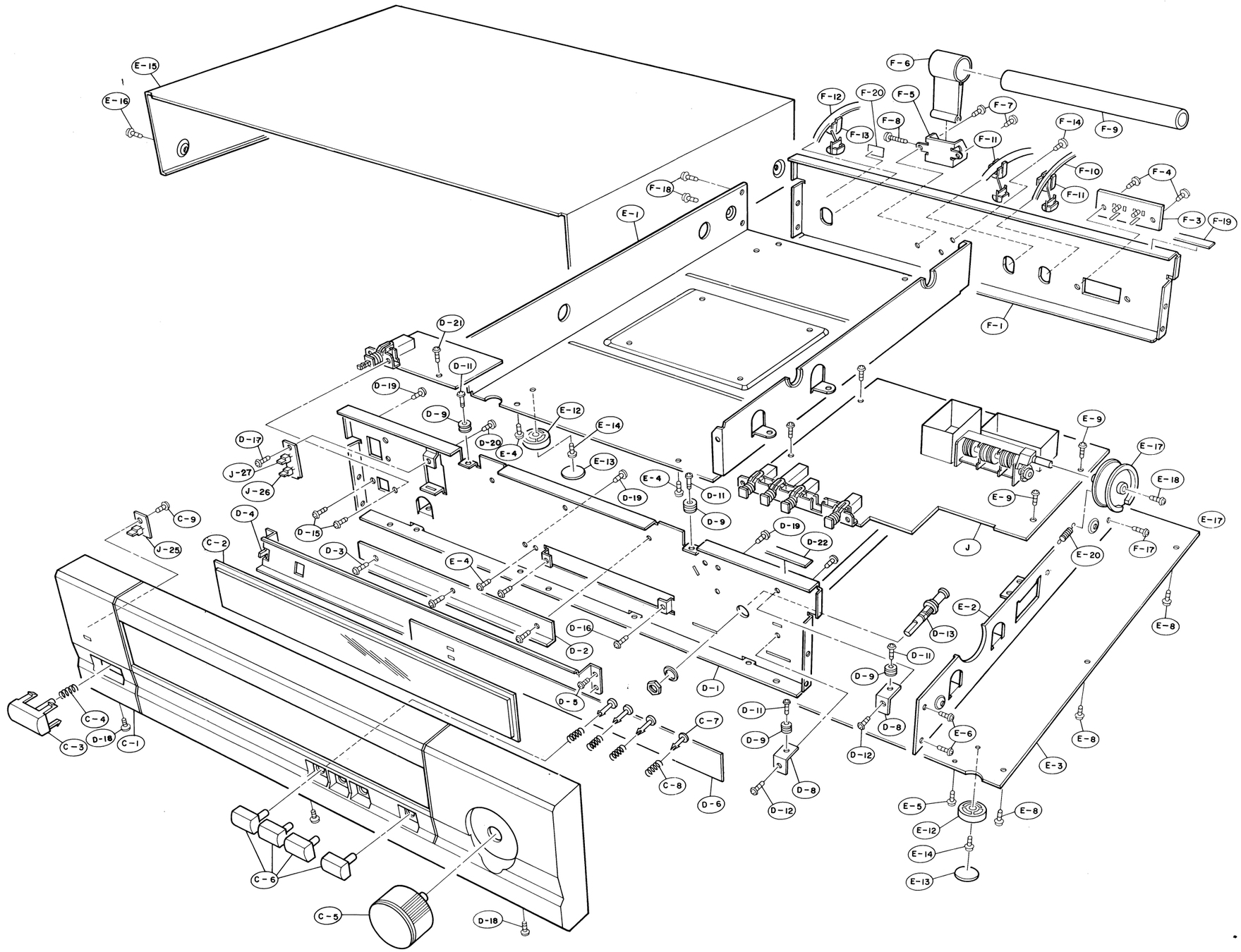
Frequency Counter····· Connect to the TP2 (Pin12 of IC301)
Adjust for frequency Counter to indicate 19KHZ.



P. C. BOARD (TOP VIEW)



EXPLODED VIEW (CABINET)



ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Produsts marked with a ⚠ have special characteristics important to safety, before replacing any of these components, read carefully the product safety notice of this service manual, don't degrade the safety of the product through improper servicing.

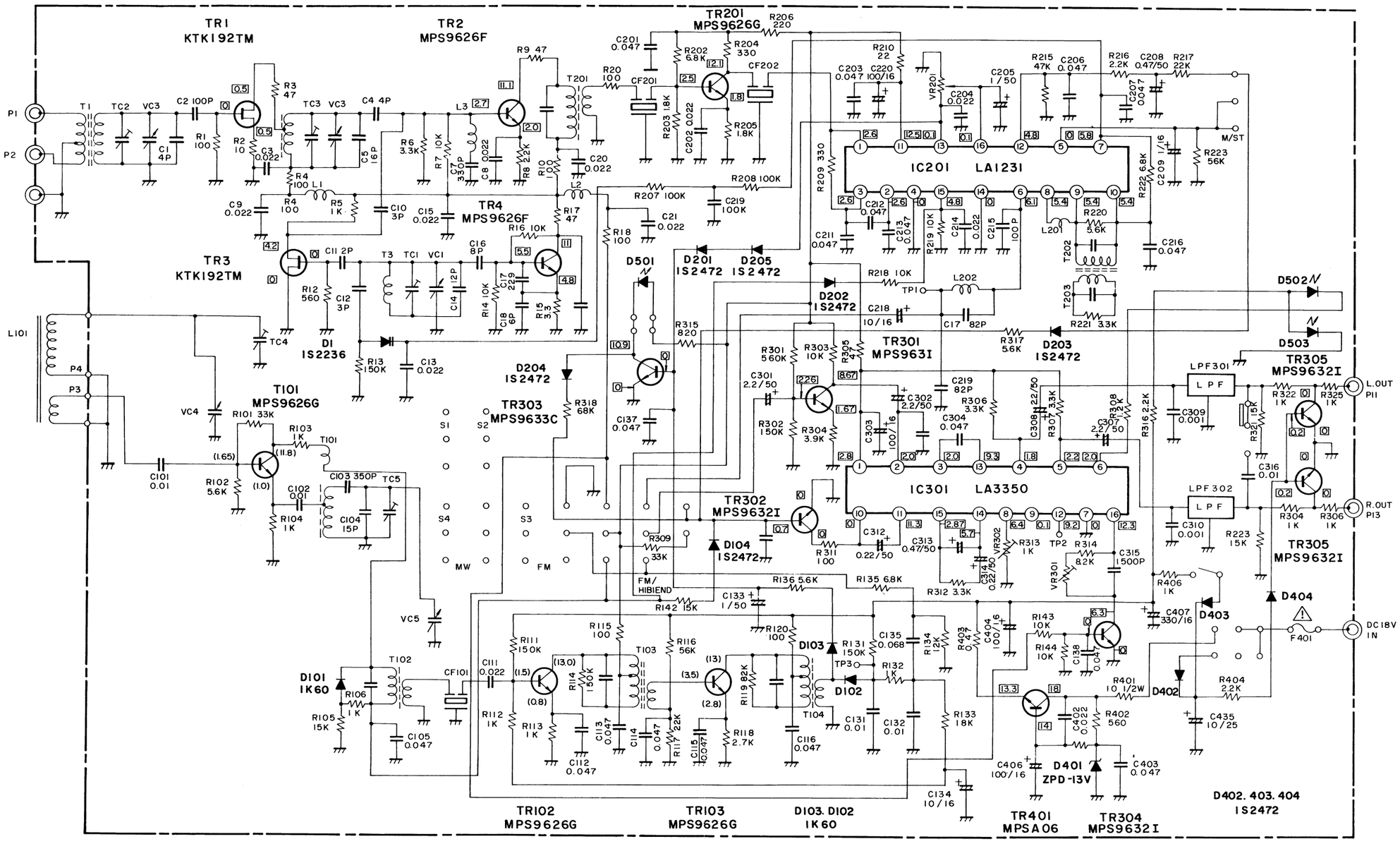
REF. NO.	DESCRIPTION	MFR'S PART NO.
	IC / TRANSISTOR	
IC201	IC, LA1231V	668-052A
IC301	IC, LA3350	668-025A
TR, 1	FET, KTK192TM-GR	667-012A
TR, 2	TR, MPS9626F	662-048C
TR, 3	FET, KTK192TM-GR	667-012A
TR, 4	TR, MPS9626F	662-048C
TR, 101	TR, MPS9626G	662-048D
TR, 102	TR, MPS9626G	662-048D
TR, 103	TR, MPS9626G	662-048D
TR, 201	TR, MPS9626G	662-048D
TR, 301	TR, MPS9632I	662-034D
TR, 302	TR, MPS9632I	662-034D
TR, 303	TR, MPS9632C	662-026D
TR, 304	TR, MPS9632I	662-034D
TR, 305	TR, MPS9632I	662-034D
TR, 306	TR, MPS9632I	662-034D
TR, 401	TR, MPSA06	662-603B
	DIODE	
D1	1S2236	
D101	1K60	
D102	1K60	
D103	1K60	
D104	1S2472	
D201	1S2472	
D202	1S2472	
D203	1S2472	
D204	1S2472	
D405	1S2472	
D401	ZPD-13	
D402	1S2472	
D403	1S2472	
D404	1S2472	
D505	1S2472	
D501	LED, KLG205E-TUNING	
D502	LED, KLR205E-STEREO	
D503	LED, KLR208E	
	COIL/TRANS	
L1	COIL, CHOKE 2.2μH	636-602F
L2	COIL, CHOKE 2.2μH	636-602F

REF. NO.	DESCRIPTION	MFR'S PART NO.
L3	COIL, FM RF	635-602A
L201	COIL, CHOKE	636-607A
L202	COIL, PEAKIG 20.8μH	637-601D
L301	COIL, PEAKING 7.8mH	637-601E
T1	COIL, FM RF	635-607B
T2	COIL, FM RF	635-607E
T3	COIL, FM RF	635-407E
T101	COIL, AM OSC	634-015C
T102	TRANS, AM IF	644-039M
T103	TRANS, AM IF	644-601B
T104	TRANS, AM IF	644-601A
T201	TRANS, FM IF	644-610B
T202	DISCRIMINATOR	647-604A
T203	DISCRIMINATOR	647-604B
	OTHERS	
203	SWITCH-FUNCTION	554-631C
	SWITCH-TAPE MONITOR	554-613P
VC	VARICON, CR52J500	621-604A
F401	FUSE, 250V 315mA	585-203C
TC1	TRIMMER	623-001A
CF201	FILTER, CERAMIC 10.7MAB	616-007A
CF202	FILTER, CERAMIC 10.7MAB	616-007A
CF203	FILTER, CERAMIC 10.7MAB	616-007A
LPF301	FILTER, LOW PASS	616-102B
LPF302	FILTER, LOW PASS	616-102B
VR201	VR, SEMI-FIXED 47KB	613-002G
VR301	VR, SEMI-FIXED 4.7KB	613-002C
VR302	VR, SEMI-FIXED 1KB	613-002A
R401	R, METAL OXIDE 10 1/2W	RS100J01
R403	R, CARBON FILM 4.7 1/2W	RD4R7J03

MECHANICAL PARTS LIST

REF. NO.	DESCRIPTION	MFR'S PART NO.
C-1	PANEL, FRONT	258-952A
C-2	SCALE, WINDOW	236-621A
C-3	KNOB, POWER	273-753A
C-4	SPRING, KNOB	442-634T
C-5	KNOB, TUNING	272-251B
C-6	KNOB, PUSH	273-750A
C-7	HOLDER, PUSH KNOB	324-426A
C-8	SPRING, KNOB	442-634G
C-9	SCREW, SPECIAL	353-025G
D-1	CHASSIS, FRONT	313-929A
D-2	BRACKET, POINTER SLIDE	321-032A
D-3	SCREW	TRQ1830J
D-4	BRACKET, SCALE	321-036A
D-5	SCREW	TRQ1830J
D-6	PLATE, SCALE	252-625A
D-7	BRACKET, IDLER WHEEL	321-030A
D-8	BRACKET, IDLER WHEEL	321-031A
D-9	WHEEL, IDLER	434-001B
D-11	SCREW, SPECIAL	353-610F
D-12	SCREW, TRQ2+3×6A	TRQ1830J
D-13	TUNING, SHAFT	421-621H
D-14	POINTER	361-660A
D-15	SCREW	MRC1830J
D-16	SCREW	MRC1830J
D-17	SCREW	TRQ1830J
D-18	SCREW	TRQ1836I
D-19	SCREW, SPECIAL	353-025G
D-20	SCREW, SPECIAL	353-025J
D-21	SCREW	TRQ1830J
D-22	CUSHION	447-606R
E-1	CHASSIS, BOTTOM	313-932A
E-2	FRAME, SIDE	315-904A
E-3	PLATE, BOTTOM	256-872B
E-4	SCREW	TRQ1830J
E-5	SCREW	TRQ1830J
E-6	SCREW	TRQ1830J
E-7	SCREW	TRQ1830J
E-8	SCREW	TRQ1830J
E-9	SCREW	TRQ1830J
E-12	FOOT	265-024A
E-13	FELT	472-610B
E-14	SCREW	TRQ1836J
E-15	CABINET	213-705B
E-16	SCREW, SPECIAL	353-072E
E-17	PULLEY, VARICON	431-089A
E-18	SCREW	MRC1530J
E-19	WASHER	WPL1500J
E-20	SPRING	442-004I
F-1	PANEL, BACK	258-954B
F-1-1	CHASSIS, BACK	313-931B
F-3	SOCKET	573-002A
F-4	SCREW,	MRC-1836I
F-5	BRACKET, EXT, ANT.	321-906A
F-6	HOLDER, EXT. ANT.	324-441B
F-7	SCREW, TRQ2+3×8A	TRQ1836I
F-8	SCREW, MRC+3×24	MRC1848I
F-9	COIL, ANT EXT, AM	632-615D
F-10	PLUG, DIN	564-026B
F-11	HOLDER, CORD	324-348A
F-12	CORD, DC POWER	564-033A
F-13	HOLDER, CORD	324-620A
F-14	SCREW	TRQ1836I
F-15	SCREW	TRQ1830J
F-16	SCREW	TRQ1830J
F-17	SCREW	TRQ1836J
F-18	SCREW	TRQ1836J
F-19	CUSHION	447-606R

SCMEMATIC DIAGRAM



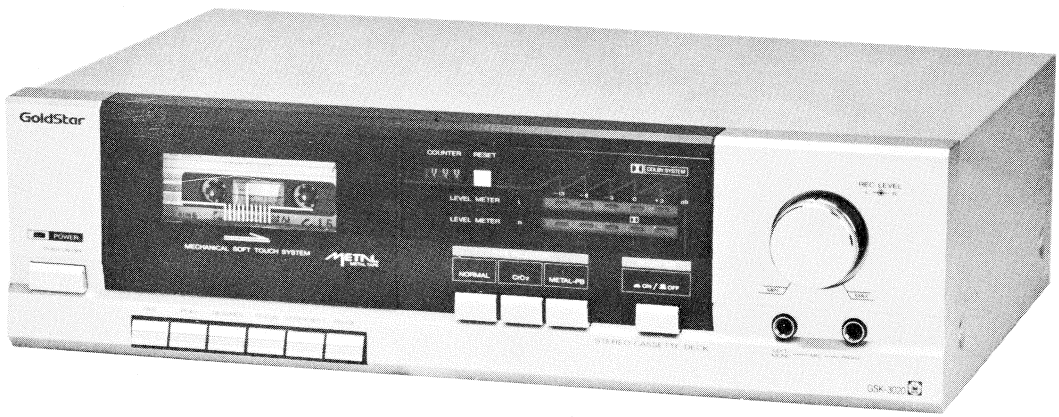
NOTES

1. ALL RESISTORS ARE 10% TOLERANCE 1/4 WATT CARBON UNLESS OTHERWISE SPECIFIED.
2. RESISTANCE VALUES IN OHMS CAPACITANCE IN MICROFARDS UNLESS OTHERWISE SPECIFIED.
3. THIS SCHEMATIC DIAGRAM MAY BE CHANGED FOR IMPROVEMENT OF PERFORMANCE WITHOUT NOTICE.
4. VOLTAGE READING TAKEN WITH VTVM FROM POINT INDICATED TO CHASSIS GROUND.

□ : FM ( ) : AM

CASSETTE DECK

GSK-3020



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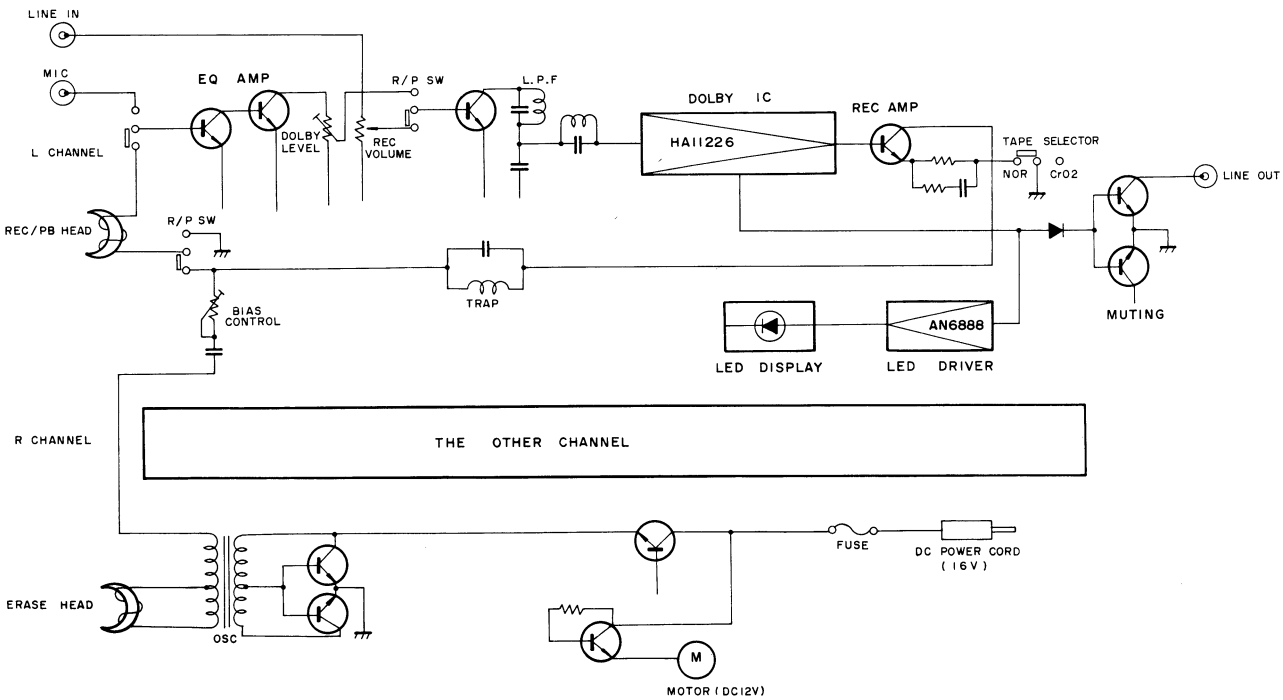
SPECIFICATIONS

1. Track system : 4 Track 2 Channel
2. Recording system : AC bias (60kHz)
3. Erasing system : AC erasing system
4. Erase ratio : More than 55dB
5. Tape speed : 4.75cm/sec
6. Wow & Flutter : Less than 0.20% (JIS)
7. F.F & Rew time : 100sec (C-60)
8. Frequency Response : Normal 40~12500Hz
   CrO_2/Metal30~18000Hz
9. THD (REC/PB) : Less than 4.0% (1kHz OVU)
10. S/N ratio (REC/PB) : More than 40dB (Dolby off)
11. Cross talk : More than 60dB
12. Channel Seperation : More than 30dB
13. Dolby NR effect : More than 8.5dB

BLOCK DIAGRAM



ALIGNMENT INSTRUCTIONS

This cassette deck has been aligned at the factory and normally will not require further adjustment As a result, it is not recommended that any attempt is made to modify any circuit. If any parts are replaced or if anyone tampers with the adjustment, realignment may be necessary.

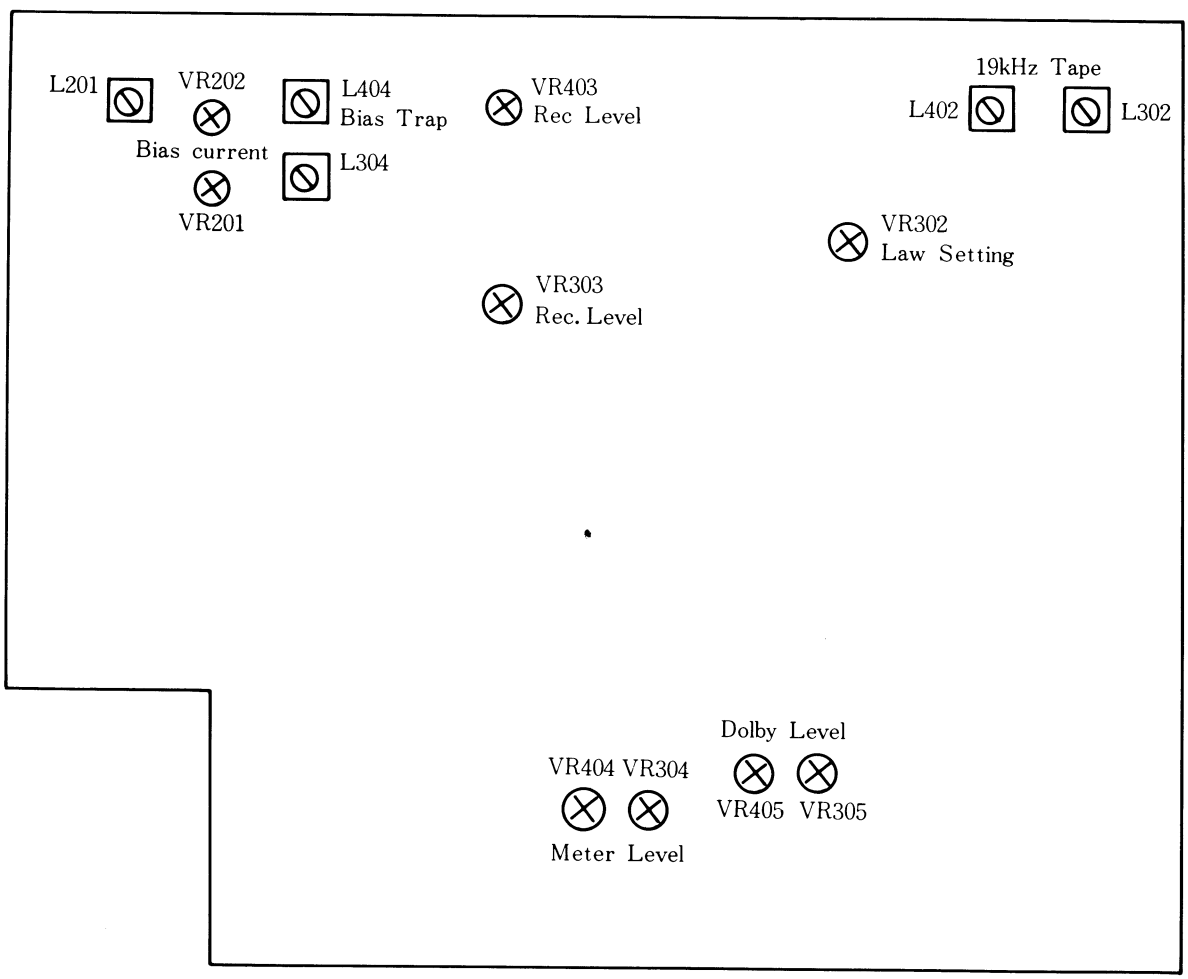
Test equipment required

1. Automatic Frequency Oscillator
2. VTVM
3. Attenuator

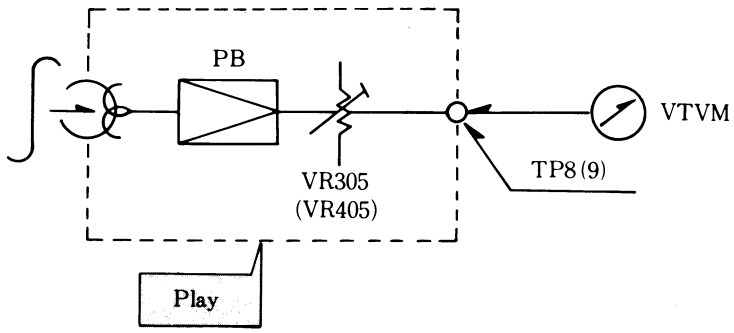
Test Tape

1. Test Tape MTT-150 (400Hz, Dolby Adjustment)
2. Test Tape MTT-114 (10kHz, Azimuth Adjustment)
3. Check Tape (Nor, M CrO_2, Metal)

Test and adjusment points

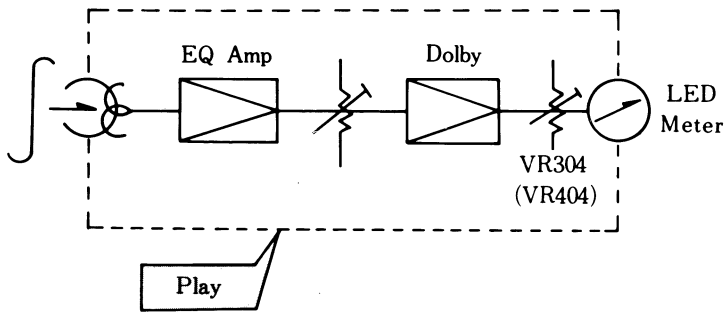


1. Dolby Level Adjustment



Input	Adjust for	Adjustment
MTT-150 (400Hz)	775mV	L : VR305 R : VR405

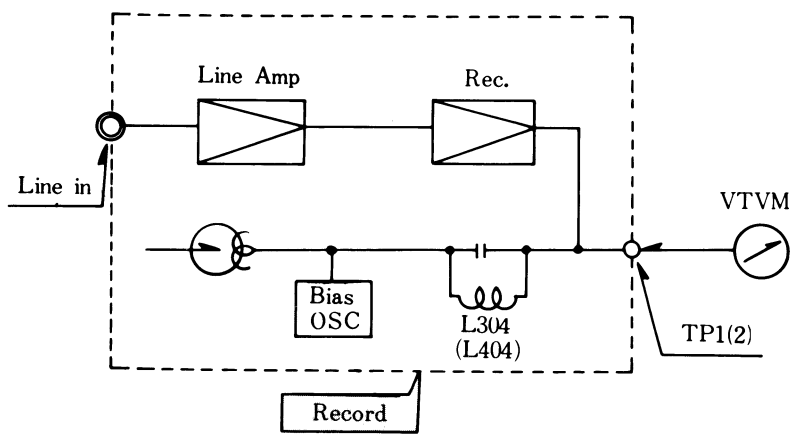
2. Meter Adjustment



Input	Adjust for	Adjustment
MTT-150 (400Hz)	600mV	L : VR304 R : VR404

Note. Tape select switch : Normal position.

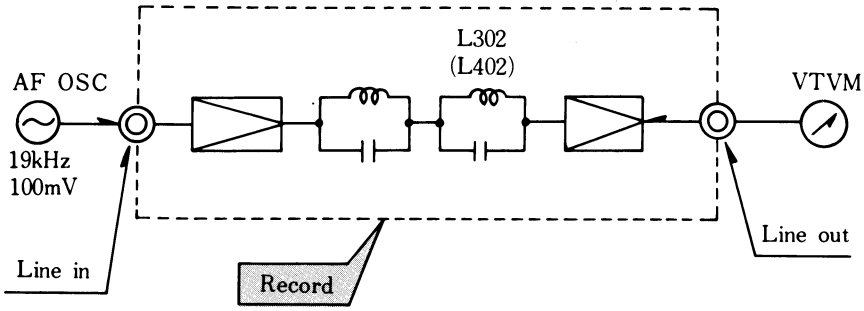
3.-Bias Trap Adjustment



Input	Adjus for	Adjustment	Remark
No signal	Minimum	L : L304 R : L404	*

Note. The "*" Sign adjusts in the TP1(2)

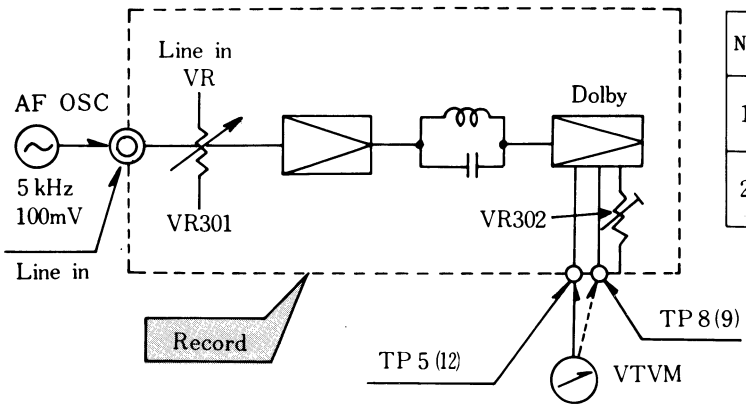
4. 19kHz Filter Adjustment



Input	Adjust for	Adjustment
19kHz 100mV	Minimum	L : L302 R : L402

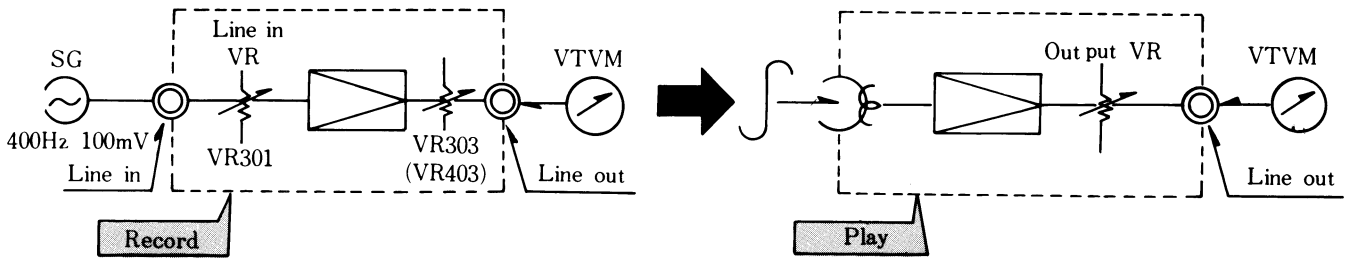
Note. Tape select Switch : Metal position

5. Law Setting Adjustment



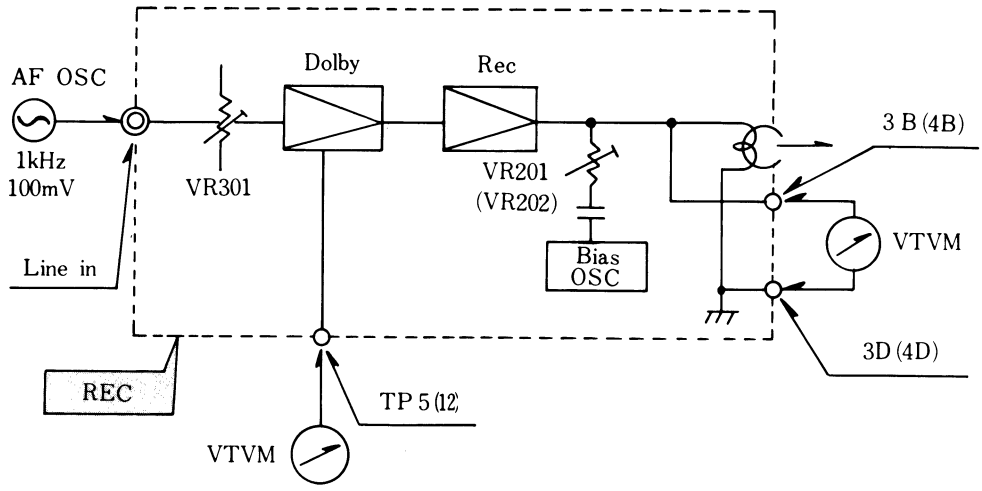
No.	Input	Adjust for	Adjust-ment	Remarks	Dolby sw
1	5 kHz 100mV	−30.4dBm	Line in VR (VR301)	Adjust in the TP 5 (12)	Off
2	5 kHz 100mV	8 dB down	VR302	Adjust in the T.P 8 (9)	On

6. Rec Level Adjustment



No.	Recording			Play back		Remarks
	Input	Adjust for	Adjustment	Adjust for	Adjustment	Tape Selector
1	400Hz 100mV	775mV	Line−in VR (VR301)	775mV	L : VR303 R : VR403	Normal
2	400Hz	775mV	VR301	775mV	Confirmation	CrO_2
3	Repeat the above No. 1, 2 for minimum change					

7. Bias Current Adjustment



① Pre-adjustment

Input	Adjust for	Adjustment	Tape selector	Remark
No signal	AC 12V	L : VR201 R : VR202	CrO_2	T.P 3 B (4 B) and 3 D (4 D)

② Main-adjustment

No.	Input level 〔TP 5(12)〕	Frequency	Output Difference	Adjustment	Tape
1	−25 dBm	1/10kHz	3 dB	VR201 (VR202)	Normal
2	〃	〃	〃	Confirmation	CrO_2
3	Repeat the No. 1, 2 for minimum change.				

STANDARD MAINTENANCE

Tape Head and Capstan Cleaing

Whenever a unit is brought in for service or repair, clean the tape heads, capstan drive shaft and other tape handling surfaces to insure proper tape handling and optimum frequency response. Use a cotton swab dipped in head cleaner or denatured alcohol to clean all tape handling surfaces. Wipe dry.

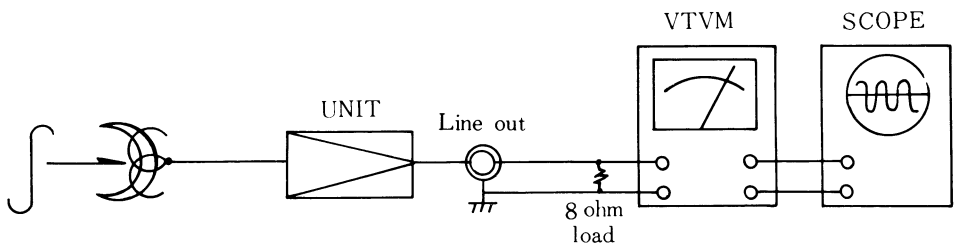
Tape Head Demagnetization

Do not use magnetized tools near the tape heads, since they can magnetize the heads. After long period of use, the heads will retain a small amount of residual magnetism. A magnetized head will result in loss of high frequency response and increased noise. Use a standard tape head demagnetizer and follow the instructions supplied with it to demagnetize the heads.

Azimuth Adjustment

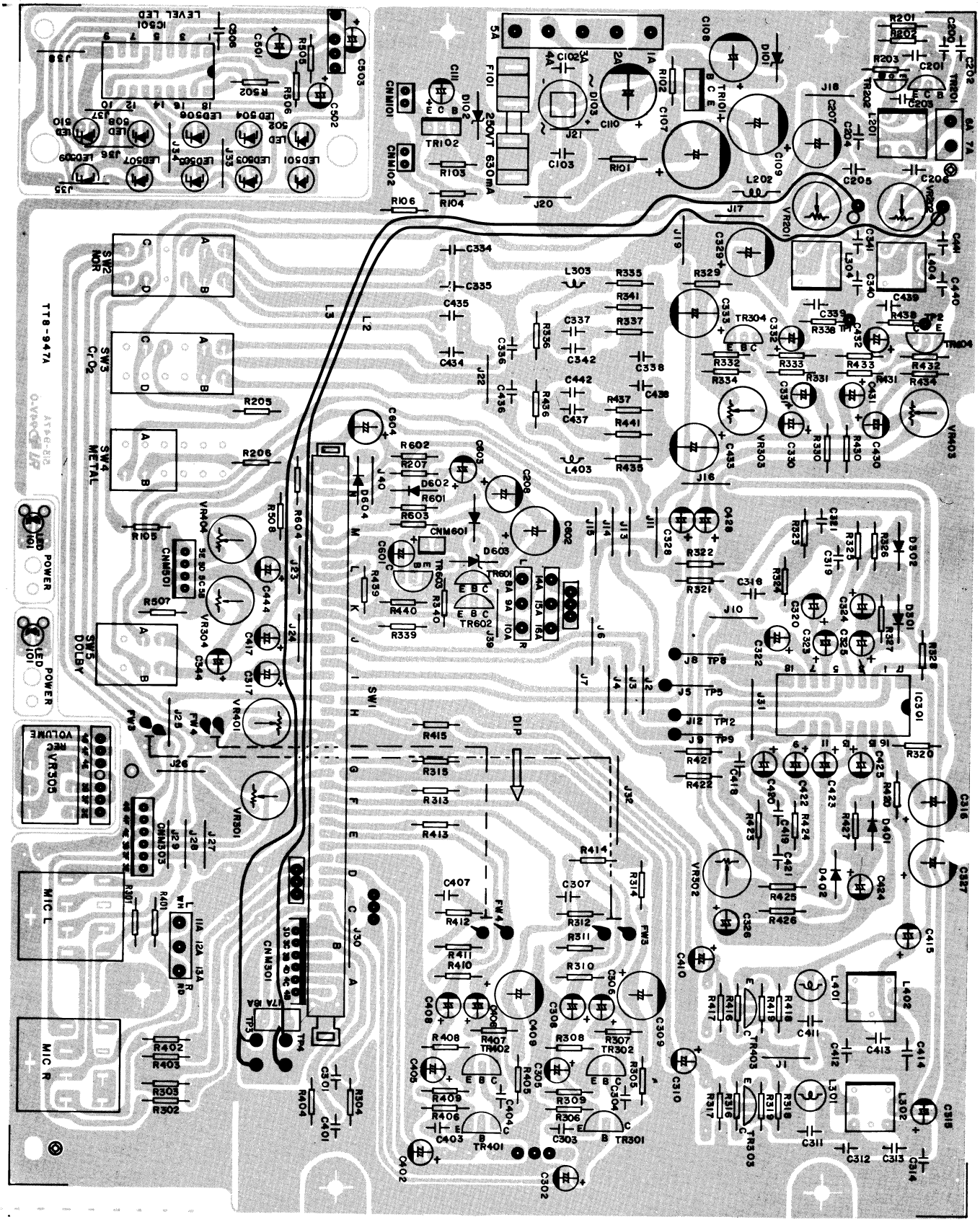
1. Azimuth adjustment is normally required when the head is replaced, or for cases of cross-talk and poor high frequency response. A test tape is required for such adjustment.

2. Connect a scope or VTVM to the right channel line out jack. Insert a test tape into the unit (use a test tape such as TEAC MTT-114, MTT-115). Adjust the azimuth adjustment screw for maximum output onto the right channel. Use glyptal or other non-hardening cement to lock the azimuth adjustment screw.

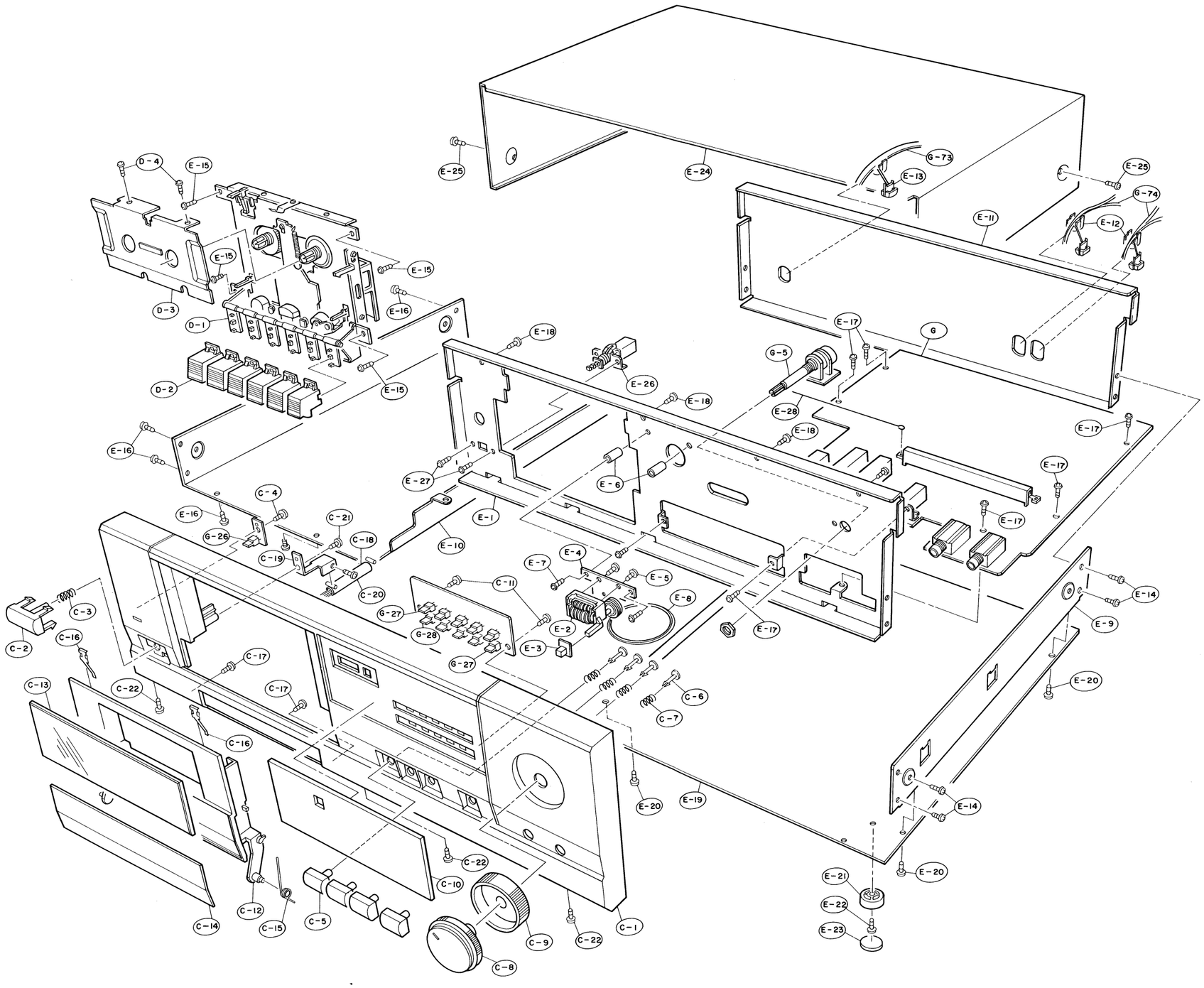


(Left channel is the same as right)

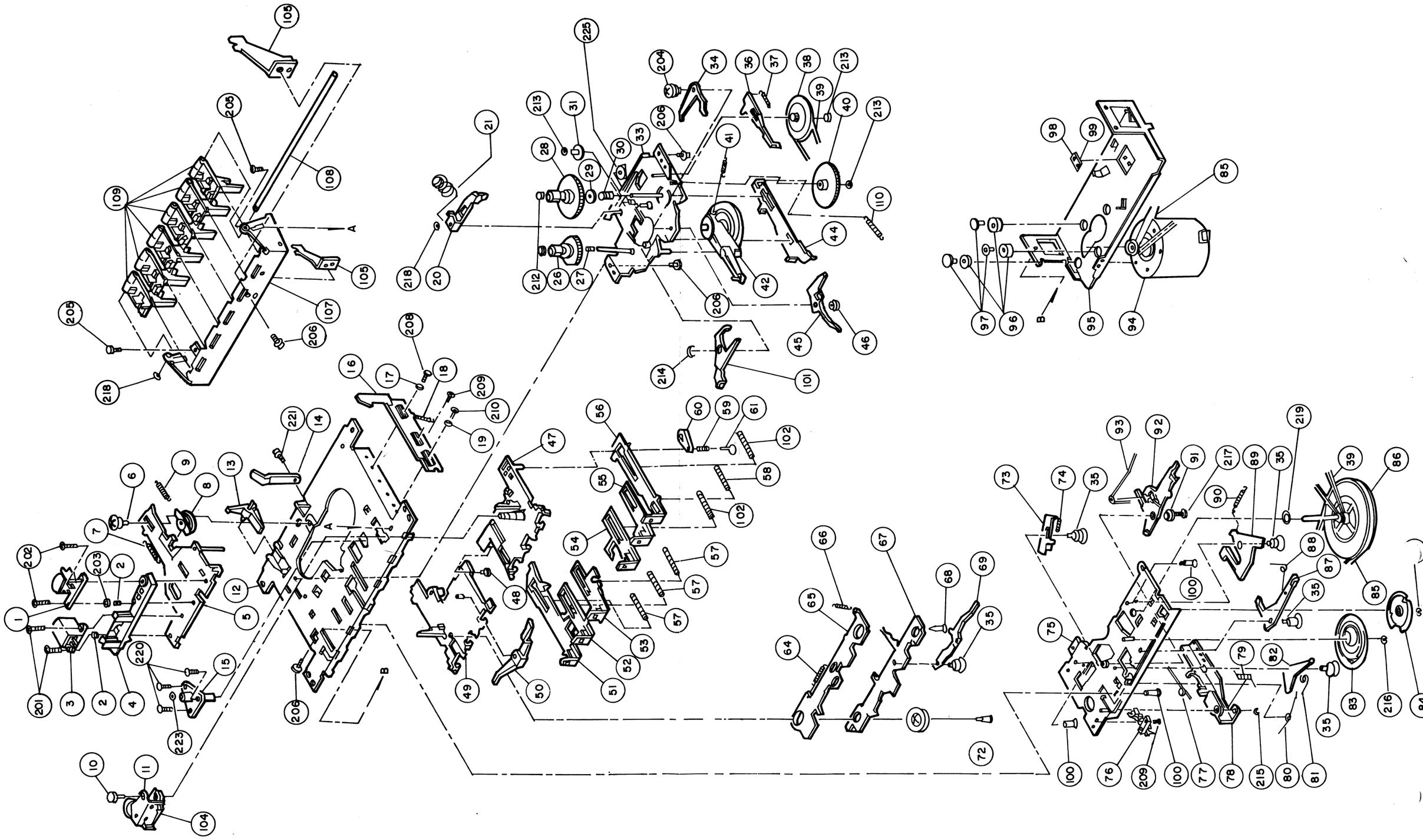
P. C. BOARD (TOP VIEW)



EXPLODED VIEW (CABINET)



EXPLODED VIEW (DECK MECHANISM)



ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety before replacing any of them components read carefully the productsafety notice of this service manual, don't degrade the safety of the product through improper servicing.

REF. NO.	DESCRIPTION	MFR'S PART NO.
	IC / TRANSISTOR	
IC301	IC, HA11226	668-032A
IC501	IC, AN6888	668-211A
TR101	TR, 2SC1827-Y	665-882C
TR102	TR, 2SC1827-Y	665-882C
TR201	TR, KTC1959-Y	665-814B
TR202	TR, KTC1959-Y	665-814B
TR301	TR, MPS9635C	662-606C
TR302	TR, MPS9635C	662-606C
TR303	TR, MPS9635C	662-606C
TR304	TR, MPS9635C	662-606C
TR401	TR, MPS9635C	662-606C
TR402	TR, MPS9635C	662-606C
TR403	TR, MPS9635C	662-606C
TR404	TR, MPS9635C	662-606C
TR601	TR, MPS9632I	662-034D
TR602	TR, MPS9632I	662-034D
TR603	TR, MPS9632I	662-034D
	DIODE	
D101	ZPD-13	654-607B
D102	ZPD-13	654-607B
D301	1S2472	651-605B
D302	1K34A	651-605A
D401	1S2472	651-605B
D402	1K34A	651-605A
D601	1S2472	652-605B
D602	1S2472	652-605B
D603	ZPD 7.5	654-608E
D604	1S2472	652-605B
LED101	LED, KLR208E	653-625A
LED501	LED, KLG205E	653-618B
LED502	LED, KLG205E	653-618B
LED503	LED, KLG205E	653-618B
LED504	LED, KLG205E	653-618B
LED505	LED, KLG205E	653-618B
LED506	LED, KLG205E	653-618B
LED507	LED, KLR205E	653-618A
LED508	LED, KLR205E	653-618A
LED509	LED, KLR205E	653-618A
LED510	LED, KLR205E	653-618A

REF NO.	DESCRIPTION	MFR'S PART NO.
	VARIABLE RESISTORS	
VR201	VR, SEMI-FIXED 150KB	613-002E
VR202	VR, SEMI-FIXED 150KB	613-002E
VR301	VR, SEMI-FIXED 100KB	613-002J
VR302	VR, SEMI-FIXED 10KB	613-002F
VR303	VR, SEMI-FIXED 22KB	613-002D
VR304	VR, SEMI-FIXED 10KB	613-002F
VR403	VR, SEMI-FIXED 22KB	613-002D
VR404	VR, SEMI-FIXED 10KB	613-002F
	COIL / TRANS	
L201	COIL, TAPE OSC	634-605B
L202	COIL, PADDING	639-602B
L301	COIL, PEAKING 37mH	637-005C
L302	COIL, TRAP	638-601C
L303	COIL, PEAKING 6.6mH	639-602F
L304	COIL, TRAP	638-601C
L401	COIL, PEAKING 37mH	637-005C
L402	COIL, TRAP	638-601C
L403	COIL, PEAKING 6.6mH	639-602F
L404	COIL, TRAP	638-601C
	JACK-MIC	572-161A
	SWITCH-TAPE SELECTOR	554-611Z
	SWITCH-REC / PLAY	552-608A
⚠ F101	FUSE, 250V 630mA	585-206F

MECHANICAL PARTS LIST

Cabinet

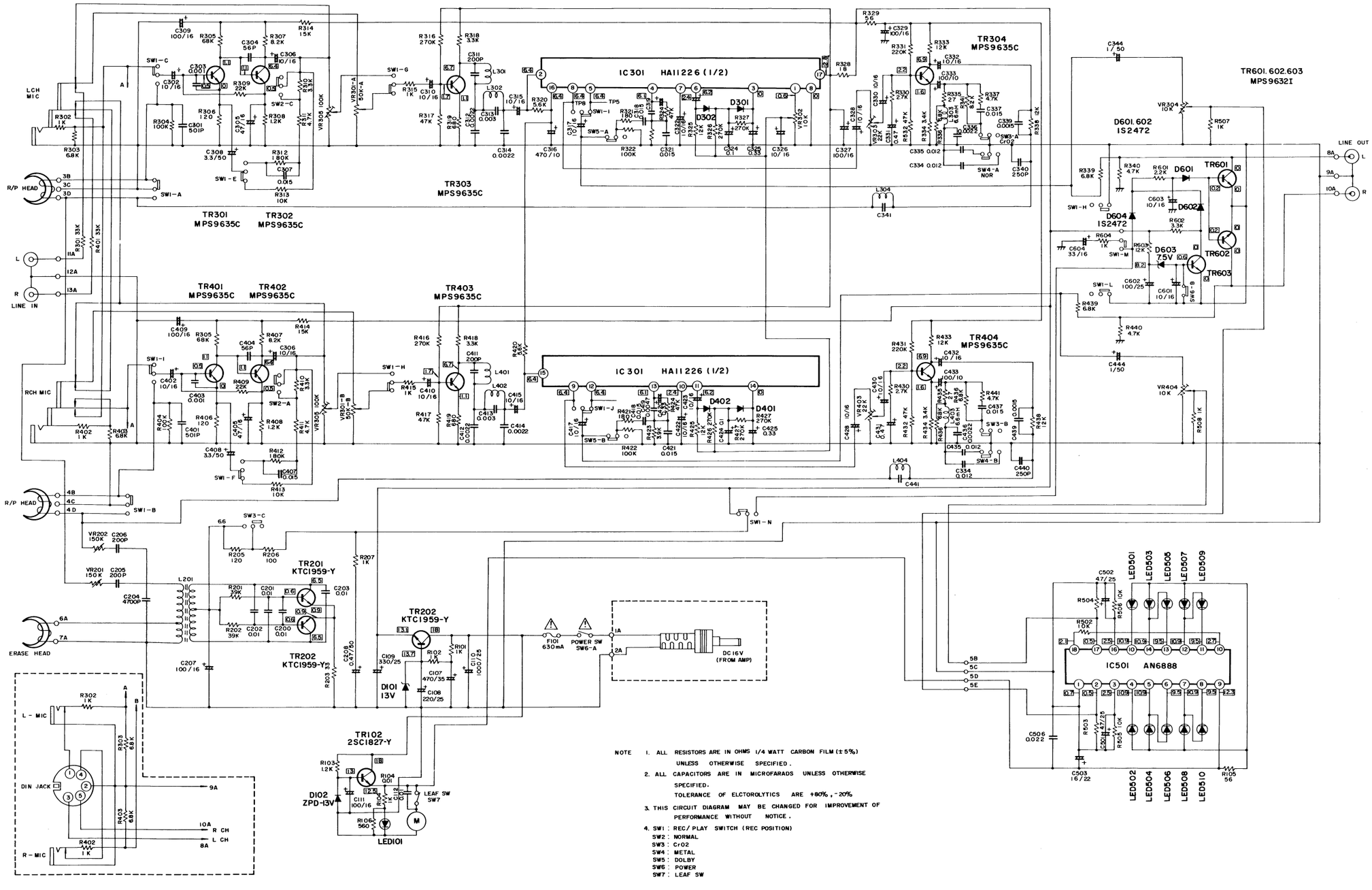
REF. NO.	DESCRIPTION	MFR'S PART NO.	REF. NO.	DESCRIPTION	MFR'S PART NO.
C-1	PANEL, FRONT	258-950A	E-18	SCREW, SPECIAL	353-025B
C-2	KNOB, POWER	273-753A	E-19	PLATE, BOTTOM	256-871A
C-3	SPRING, KNOB	442-634T	E-20	SCREW, TRQ2+3×8A	TRQ1836J
C-4	SCREW, SPECIAL	353-025B	E-21	FOOT	265-024A
C-5	KNOB, PUSH	273-750A	E-22	SCREW, TRQ2+3×8A	TRQ1836J
C-6	HOLDER, PUSH KNOB	324-426A	E-23	FELT	472-610B
C-7	SPRING, KNOB	442-634G	E-24	CABINET	213-704A
C-8	KNOB, REC-A	273-748A	E-25	SCREW, TR SPECIAL	353-072E
C-9	KNOB, REC-B	273-749A	E-26	SWITCH	554-613P
C-10	WINDOW, LEVEL	236-620A	E-27	SCREW	MRC1830J
C-11	SCREW, SPECIAL	353-025B	E-28	HOOK, REC	335-605A
C-12	DOOR, CST	226-627A			
C-13	WINDOW, CST	236-619A			
C-14	PLATE, DECORATION	246-640A			
C-15	SPRING, CASSETTE	442-211A			
C-16	SPRING, CST PACK	442-711B			
C-17	SCREW, SPECIAL	353-052C			
C-18	DAMPER	444-100A			
C-19	BRACKET, DAMPER	321-831A			
C-20	SCREW, MRC+2×14	MRC0943J			
C-21	SCREW, SPECIAL	353-025G			
C-22	SCREW, TPQ2+3×8A	TRQ1836J			
D-1	DECK, TN39ZF-285	412-077G			
D-2	KNOB, CST KEY	273-752A			
D-3	DECORATION	246-638C			
D-4	SCREW	TRQ1522J			
E-1	CHASSIS FRONT	313-926A			
E-2	TAPE COUNTER	517-006A			
E-3	KNOB, RESET	273-751A			
E-4	BRACKET, COUNTER	321-815A			
E-5	SCREW	353-022B			
E-6	STUD	347-102A			
E-7	SCREW	TRQ2245J			
E-8	BELT, COUNTER	451-146C			
E-9	CHASSIS, FRONT	313-903A			
E-10	CHASSIS, MAIN	313-927A			
E-11	PANEL, BACK	258-949B			
E-12	HOLDER, CORD	324-348A			
E-13	HOLDER, CORD	324-620A			
E-14	SCREW	TRQ1836J			
E-16	SCREW	TRQ1836J			
E-17	SCREW	TRQ1836J			
E-17	SCREW	TRQ1836J			

Deck Mechanism

REF. NO.	DESCRIPTION	MFR'S PART NO.	REF. NO.	DESCRIPTION	MFR'S PART NO.
1	RP HEAD	99T-0373	50	REC STOPPER	99T-0336
2	HEAD SPRING	99T-0600	51	REC BTN LEVER	99T-0629
3	ERASE HEAD	99T-0374	52	PLAY BTN LEVER	99T-0630
4	HEAD BASE	99T-0312	53	RWD BTN LVR	99T-0631
5	HEAD PANEL AY	99T-0601	54	FF BTN LVR	99T-0632
6	COLLAR SCREW	99T-0602	55	STOP BTN LVR	99T-0633
7	HEAD PANEL SPRING	99T-0603	56	PAUSE BTN LVR AY	99T-0634
8	TAKE UP ROLR SH AY	99T-0314	57	BTN LVR SPRING	99T-0635
9	T-UP ROLLER SHAF SP	99T-0604	58	BTN LVR SPRING	99T-0636
10	FUNCTION LEVER STOP	99T-0315	59	PAUSE LVR SPRING	99T-0637
11	PINCH ROLR ARM AY	99T-0316	60	PAUSE LEVER	99T-0337
12	CHASSIS	99T-0605	61	P STOPPER	99T-0338
13	REC SAFETY LEVER	99T-0317	64	SW FUN LVR SPRING	99T-0640
14	PACK HOLD SPRING	99T-0318	65	PUSH BUTTON FUN LVR	99T-0340
15	FLYWHEEL METAL	99T-0607	66	PUSH BTN FL SPRING	99T-0642
16	EJECT SLIDE LEVER	99T-0684	67	SW FUNCTION LVR	99T-0341
17	COLLAR	99T-0608	68	COLLAR SCREW	99T-0643
18	EH BASE SPRING	99T-0320	69	E KICK LEVER	99T-0644
19	COLLAR	99T-0609	70	SPACER	99T-0698
20	CONTROL LEVER	99T-0610	72	COLLAR SCREW	99T-0647
21	CON LVR SPRING	99T-0611	73	REC FUN LEVER	99T-0648
26	SUPPLY REEL AY	99T-0691	74	AUTO LVR ANG SP	99T-0649
27	BACK TENSION SP	99T-0692	75	SUB CHASSIS AY	99T-0342
28	TAKE UP REEL AY	99T-0693	76	BK LEAF S/W	99T-0343
29	SENSING PIECE	99T-0325	77	REC DAMPER SP	99T-0344
30	SENCING PIECE SP	99T-0694	78	REC FUNCTION ARM	99T-0345
31	FF GEAR	99T-0617	79	REC FUN ARM SP	99T-0650
33	REEL BASE AY	99T-0695	80	M GEAR SPRING	99T-0346
34	T-ROLL KICK LEVER	99T-0619	81	M TRIGGER ARM SP	99T-0347
35	COLLAR	99T-0396	82	M TRIGGER ARM AY	99T-0699
36	SENSING LEVER	99T-0630	83	M GEAR	99T-0348
37	SENSING LVR SPRING	99T-0321	84	P GEAR	99T-0349
38	PULLY	99T-0731	85	MAIN BELT	99T-0750
39	FULL AUTO BELT	99T-0607	86	FLYWHEEL AY	99T-0600
40	CAM GEAR	99T-0622	87	T TRGR ARM AY	99T-0352
41	RF CLUTCH ARM SP	99T-0397	88	P TRIGGER ARM SP	99T-0651
42	RF CLUTCH ARM AY	99T-0634	89	PAUSE ARM AY	99T-0653
44	RF SLIDE LVR AY	99T-0623	90	PAUSE ARM SPRING	99T-0654
45	AUTO LVR	99T-0624	91	LIFT ARM COLLAR	99T-0355
46	AUTO LVR COLLAR	99T-0625	92	LIFT ARM AY	99T-0753
47	BUTTON BASE L	99T-0626	93	LIFT ARM SP	99T-0701
48	COLLAR SCREW	99T-0627	94	MOTOR AY	99T-0702
49	BUTTON BASE R	99T-0628	95	FM HOLD PLATE	99T-0356

REF. NO.	DESCRIPTION	MFR'S PART NO.	REF. NO.	DESCRIPTION	MFR'S PART NO.
96	MOTOR RUBBER	99T-0357	206	TAMS SCRW 2×4	99T-0371
97	COLLAR SCREW	99T-0358	207	COLLAR SCREW	99T-0669
98	FLYWHEEL PATCH PLT	99T-0359	208	TAP SCREW 2.6×5	99T-0670
99	DAMPER SPRING	99T-0360	209	PAN SCREW 2×4	99T-0671
100	COLLAR SCREW	99T-0361	210	TAMS SCREW 2×6	99T-0672
101	KICK LEVER	99T-0686	211	TAMS SCREW 2×5	99T-0704
102	BTN LVR SPRING	99T-0657	212	E-RING SPECIAL	99T-0690
103	COLLAR	99T-0658	213	POLY WASHER 1.2×3	99T-0674
104	PINCH RLR SPRING	99T-0659	214	E-RING 12 1.2	99T-0675
105	STOPPER	99T-0360	215	E-RING 3.0	99T-0676
107	BUTTON FRAME	99T-0363	216	E-RING 2.0	99T-0677
108	BUTTON LVR SHAFT	99T-0364	217	TAMS SCREW 2.6×6	99T-0678
109	OPERATION LEVER	99T-0765	218	E RING 1.5	99T-0679
110	RF SLIDE LVR SP	99T-0603	219▪	POLY WASHER 2.2×0.5	99T-0705
101	PAN SCREW 2×8	99T-0664	220	FH SCREW 2×3	99T-0681
202	PAN SCREW 2×7	99T-0665	221	TAPPING SCREW	99T-0368
203	WASHER 2.1×5×0.2,	99T-0666	223	NYLON WASHER 2×5	99T-0683
204	COLLAR SCREW	99T-0667	225	POLY WASHER 5.2×013	99T-0706
205	TAMS SCREW 2.6×4	99T-0668			

SCMEMATIC DIAGRAM



NOTE
1. ALL RESISTORS ARE IN OHMS 1/4 WATT CARBON FILM (±5%) UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED. TOLERANCE OF ELCTOROLYTICS ARE +80%, -20%
3. THIS CIRCUIT DIAGRAM MAY BE CHANGED FOR IMPROVEMENT OF PERFORMANCE WITHOUT NOTICE.
4. SW1 : REC/ PLAY SWITCH (REC POSITION)
   SW2 : NORMAL
   SW3 : CrO2
   SW4 : METAL
   SW5 : DOLBY
   SW6 : POWER
   SW7 : LEAF SW